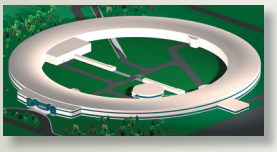
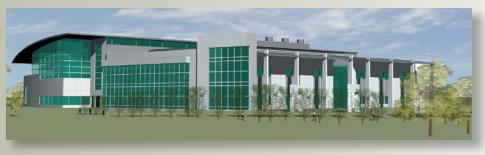
BROOKHAVEN
NATIONAL LABORATORY





10 year site plan

May 2005

BNL-73222-2005-IR

Brookhaven National Laboratory

10 year site plan

May 2005

One of ten national laboratories overseen and primarily funded by the Office of Science of the U.S. Department of Energy (DOE), Brookhaven National Laboratory conducts research in the physical, biomedical, and environmental sciences, as well as in energy technologies and national security. Brookhaven Lab also builds and operates major scientific facilities available to university, industry and government researchers. Brookhaven is operated and managed for DOE's Office of Science by Brookhaven Science Associates, a limited-liability company founded by Stony Brook University, the largest academic user of Laboratory facilities, and Battelle, a nonprofit, applied science and technology organization.

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Crosswalk Relating Contents of the Ten-Year Site Plan and the DOE-SC Guidance

DOE-Sc Ten-Year Site Plan Guidance **BNL Ten-Year Site Plan Section**

Section 1

Executive Summary

EXECUTIVE SUMMARY

BNL has prepared this Ten-Year Site Plan (TYSP) as required by DOE Order O 430.1B, "Real Property Management (RPAM). The format of the TYSP follows the guidance transmitted from DOE Office of Science, Acting Chief Operating Officer, Donald Erbschloe, dated April 14, 2005.

BNL's vision is to bring the power of science and technology to bear on compelling questions, with the goal of becoming the best science laboratory in the world in chosen areas. As we move forward, the single most important factor for making our vision a reality is the seamless alignment of exceptional science, outstanding operations, and developing and strengthening relationships with key stakeholders. With this in mind, we have identified key areas that will enable us to assume or maintain a world leadership role, which in essence will support the Laboratory into the future.

Specifically, in the next few years, as outlined in our 2005 Business Plan Presentation, BNL will concentrate on building the world-class capabilities of NSLS-II and the Center for Functional Nanomaterials, while RHIC as it transitions to a QCD Lab, the Center for Translational Neuroimaging, our aerosol program, and computation in nuclear and high-energy physics continue with world-class distinction. We expect to further develop expertise in microbial systems and computation as a basis for DOE's Genomics: GTL initiative, and in the longer term, build the Super Neutrino Beam. In addition, through the RSVP experiments designed to probe possible physics beyond the standard model, we plan to build a relationship with the NSF.

In response to the scientific priorities, BNL has formulated infrastructure projects as described in this TYSP in order to maintain mission-essential facilities and to provide new facilities in order to realize the BNL mission and to meet the goals expressed in the "DOE Office of Science Strategic Plan".

In response to the DOE's priorities, BNL has formulated infrastructure projects to maintain mission-essential facilities and provide new facilities and supporting infrastructure. We expect that these projects will be funded from the following sources:

- Infrastructure related line item budget will average $9M per year
- General Plant Projects (GPP) will average $7.2M per year
- Operating funded maintenance funded projects $5M per year with the overall maintenance budget at 2% of RPV
- Direct funded deferred maintenance reduction projects averaging $12M per year. *(New SC program proposed to begin in FY06)*

BNL has a maintenance backlog of over $220M, (including capital renewal projects), and a rehabilitation and improvement backlog of $142M. In addition, BNL also has over $60M of environmental liabilities projects. Based on the above assumptions, approximately $21.2M / year will be available for current projects with possibly up to $33M per year available if the DOE-SC DM reduction program is funded. However, this does not account for new projects which will be identified as a result on continuing facility inspection. This situation provides a significant challenge and BNL has developed the following strategies to best deal with the anticipated shortfall, and meet most of the immediate needs of its staff and facility users:

- Consolidate staff from old wood structures that need to be demolished because of significant deficiencies. Projects like the Research Support Building Phase I will facilitate this.
- Maintain quality workplaces for Users and employees and renovate space, as needed, to attract new programs. Line item projects like Renovate Science Labs Phases I and II, GPP upgrades and operating funded rehab projects will contribute to this. These efforts will be coordinated to support key scientific initiatives.
- Continue to defer major investments in 60 year-old wood buildings (mostly used by support staff). Perform minimum maintenance to keep buildings operational and safe.
- Pursue alternative financing for new buildings. BNL is currently developing a housing reconstruction project to be funded using alternative financing. If successful, other projects will be considered using this approach.
- Use planning teams composed of engineering and site maintenance staff to identify and recommend strategies for maintaining utility system reliability at minimum cost
- Pursue continuation of our NYPA contract to provide power at a reasonable cost. DOE and BNL are in the process of negotiating a 3 year extension to the NYPA power contract. Further extensions or other options will be pursued to ensure a continuing source of power at a reasonable cost.
- Work with local and state regulators to prioritize environmental liability issues.
- Prioritize all infrastructure, ES&H and program investments to maximize infrastructure value, reduce risk, and support the science programs.

Section 2

Site Summary

SITE SUMMARY

2.1 LABORATORY OVERVIEW

Thirty percent of Brookhaven National Laboratory's (BNL's) 5,320 acre site is developed (Figure 2-1). Many buildings date back to World War II, some earlier. Most major permanent facilities are the DOE/SC facilities built in the 1950s and 1960s, excluding those constructed for RHIC. The remainder is wells and treatment facilities supporting the DOE/EM environmental remediation programs which are expected to move from DOE-EM to DOE-SC in FY10. BNL's site-wide utilities include electrical, steam, sanitary sewer, storm sewer, and potable-water systems, with limited distribution systems for chilled-water and compressed air. The following tables provide an overview of the Laboratory's facilities:

Table 2-1: Laboratory Space Distribution, Summary
Table 2-2: Replacement Plant Value
Table 2-3: Laboratory Space Distribution, GSA Group
Table 2-4: Building Age Distribution
Table 2-5: BNL's Cost and Funding Profile History
Table 2-6: Summary Overview of Facilities

TABLE 2-1 Laboratory Space Distribution, Summary

	SC		EM	
	SF x 1,000	#	SF x 1,000	#
Facility Type				
Total Buildings	3,918	345	177	18
Active Buildings	3,760	319	5	9
Operational Excess Buildings	111	16	0	0
Non-operational Excess	47	10	172	9
Portable Structures [1]	85	258	11	30
Leased Off-site	0	0	0	0

1. Portable structures: Facilities not meeting the criteria for real property buildings. They include trailers, sheds, containers, railroad cars, and HAZMAT storage units. Source: DOE FIMS Database 03/23/05.

FIGURE 2-1 Aerial Photo – Brookhaven National Laboratory Main Site Area

TABLE 2-2 Replacement Plant Value ($M)

Asset Type	SC	EM
Total Buildings	1,071	52
Active Buildings	1,032	1
Operational Excess Buildings	25	0
Non-operational Excess Buildings	14	51
Total OSF	1,364	125
Active OSF	275	42
Active Programmatic (OSF 3000 Series)	1,079	0
Excess Other Structures & Facilities (OSF)	10	83

Source: DOE FIMS Database 03/23/05.

TABLE 2-3 Laboratory Space Distribution, GSA Grouping (Active and Operational Excess)

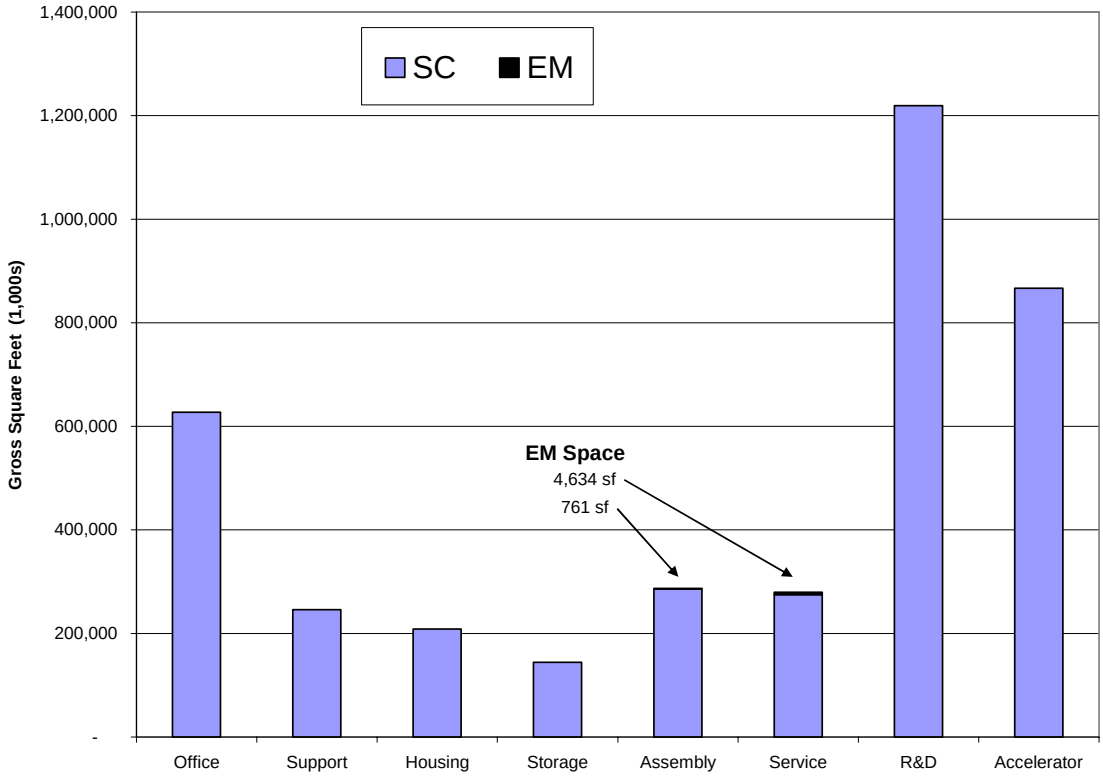


TABLE 2-4 Building Age Distribution (Active and Operational Excess)

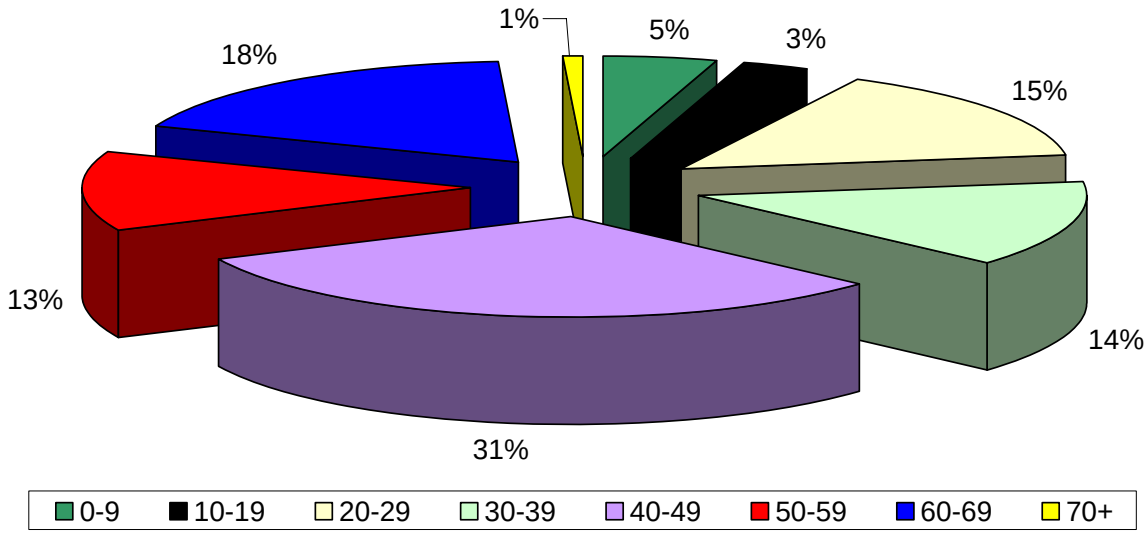


TABLE 2-5 BNL's Cost and Funding Profile History ($M)

	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
OPERATING COSTS													
High Energy & Nuclear Physics(KA/KB)	$84.8	$80.3	$85.1	$85.3	$93.7	$99.4	$130.2	$143.4	$146.6	$147.8	$146.7	$151.4	168.3
Basic Energy Sciences(KC)	71.9	70.1	69.9	71.5	79.7	69.3	69.0	75.7	68.9	52.2	54.2	61.6	63.5
Biological & Environmental Research(KP)	26.3	26.4	27.3	26.8	25.1	24.1	22.4	21.5	18.2	19.5	18.7	18.5	20.9
Other DOE Research(excluded WN050)	53.9	60.2	60.7	68.0	58.7	59.0	59.9	63.2	75.1	90.3	94.5	95.5	102.4
Total DOE Operating Costs (1)	$236.9	$237.0	$243.0	$251.6	$257.2	$251.8	$281.5	$303.8	$308.8	$309.8	$314.1	$ 327.0	$ 355.1
Other Agencies	46.6	48.0	53.7	50.6	52.4	49.5	52.7	62.8	76.5	81.4	77.1	86.4	51.9
Total Operating Costs (2)	$283.5	$285.0	$296.7	$302.2	$309.6	$301.3	$334.2	$366.6	$385.3	$391.2	$391.2	$413.4	$ 407.0
Capital Equipment Costs(EQU,GPE)	26.9	21.6	21.5	22.5	19.6	24.2	26.2	28.2	40.3	33.3	28.3	27.1	29.6
Construction Costs(LI,AIP,GPP)	80.1	103.7	127.9	122.0	93.2	86.9	38.6	16.9	16.8	17.3	18.2	13.7	30.4
Total BNL Costs	$390.5	$410.3	$446.1	$446.7	$422.4	$412.4	$399.0	$411.7	$442.4	$441.8	$437.7	$454.2	$ 467.0
BUDGET AUTHORITY													
Operating Funds (exclude WN050)	234.4	231.7	236.9	250.7	254.0	260.3	295.9	294.1	330.8	329.5	309.0	331.6	344.8
Capital Equipment Funds	19.9	22.8	21.9	22.8	16.7	26.7	28.7	36.5	35.9	34.6	29.7	25.0	19.7
Construction Funds	97	106.4	97.1	87.0	88.1	72.5	28	14.8	16.9	16.1	18.5	18.3	36.7
Total DOE Budget Authority	$351.3	$360.9	$355.9	$360.5	$358.8	$359.5	$352.6	$345.4	$383.6	$380.2	$357.2	$374.9	401.2
Other Agencies	72.2	41.2	66.5	46.5	46.3	40.7	62.4	68.4	76.2	82.9	86.1	74.4	61.8
Total BNL Budget Authority (3)(4)	$423.5	$402.1	$422.4	$407.0	$405.1	$400.2	$415.0	$413.8	$459.8	$463.1	$443.3	$449.3	463.0
Full-Time Equivalents (FTEs)	3,484	3,417	3,360	3,219	3,107	3,057	3,015	2,979	2,880	2,855	2,818	2,700	2,580

1. Inventories B/A & costs are not included.
2. Other agencies includes -40, 60, 65, 82& 81(Olab) Grants (Proj Type "RGRANT") A/R (WFO Type "IN", "FES", "FEL" & "NES") & WN02.
3. Other agencies B/A includes - 40, 60, 65, Other Labs(Prog. 81 & 82), Fed and Non Fed Grants and A/R (WFO Type "IN", "FES", "FEL" , "NES") & WN02.
4. Project Type "Other" reported in Budget Authority and Total Cost from FY 2004 onward.

TABLE 2-6 Summary Overview of DOE Facilities

	SC	EM
Landlord Program	Nuclear Physics	N/A
Buildings		
Number	345	18
Gross Square Feet (gsf)	3,918,940	177,357
Largest Occupied (in gsf)	256,548 RHIC Tunnel	117,790 HFBR
Wooden Buildings (gsf)	541,986	500
Age of Buildings: Average (Weighted by SF)	43	44
% Space older than 40 years	61.5	95.5
% Space older than 30 years	76.2	96.8
Portable Structures (Trailers, sheds, storage containers) # of:		
Real Property	0	0
Personal Property	258	30
Excess Facilities (Excludes Operational Excess):		
Uncontaminated (Radiological) (gsf)	20,824	0
Contaminated (Radiological) (gsf)	25,967	170,485
Building space to be Removed – FY05 (gsf)	22,074	613
RPV $M Total	2,433.9	176.7
Buildings	1,070.9	51.6
Active Buildings (a)	1,032.2	0.7
Operational Excess Buildings (b)	24.5	0.0
Excess Buildings	14.2	50.9
OSF	1,363.0	125.1
Active OSF (Non 3000 Series) (c)	274.7	41.9
Active OSF (Programmatic – 3000 Series)	1,078.0	0.0
Excess OSF	10.3	82.7
MII Index Basis RPV (a + b + c)	1,331.4	N/A
Maintenance Investment Index (MII)		
FY 03	1.4%	N/A
FY 04	1.4%	N/A
FY 05 (planned)	1.7%	N/A
FY 06 (planned)	2.0%	N/A
FY 07 (planned)	2.0%	N/A

Deferred Maintenance (DM) Trend $M		
DM 2002	227	1
DM 2003	220	1
DM 2004	230	1
DM 2005 (estimate)	228	1
DM 2006 (estimate)	228	1
Total Summary Condition (DM + RIC) *: $M	370,395,525	921,154
Deferred Maintenance (DM)	222,848,387	858,751
Buildings	174,158,724	858,751
OSF	48,689,663	0
Rehab and Improvement Cost (RIC)	147,547,138	62,403
Buildings	142,963,138	62,403
OSF	4,584,000	0
*Doesn't include personal property trailers		
Total Summary Condition Index (TSCI): (percent of Total RPV) * (Excludes Excess Facilities)	29.8%	1.45%
Facility Condition Index (FCI) (based on DM)	16.4%	1.36%
Rehab & Improvement Cost Index (based on RIC)	13.4%	0.09%
ACI (Asset Condition Index from RPAM Order) (1-FCI)	.836 (fair)	.986 (excellent)
AUI (Asset Utilization Index from RPAM Order)	.99 (excellent)	.99 (excellent)
Leased assets:	None	None

2.2 SITE / LABORATORY HISTORY

The area of Central Suffolk County now occupied by BNL once served as the site of Camp Upton. during World War I. When the war ended, Camp Upton's usefulness was limited. For a time it functioned as a demobilization site for returning veterans, but eventually the Army deactivated it and sold off all its contents. In the 1930s, the Civilian Conservation Corps (CCC) replanted trees and vegetation, dug wells and constructed many firebreaks in an effort to establish the site as Upton National Forest. During WWII the Army rebuilt the site as an induction center. At the end of the war, Camp Upton was used as a hospital and as a rest and recuperation facility. In 1947, it was transferred to the Atomic Energy Commission, and BNL was born.

In converting the site to a national research center, barracks were to be used as temporary facilities until permanent structures could be built to house the scientists and their equipment. When BNL opened, it was one of three National Laboratories. These were places where federally funded facilities could be built that were beyond the resources of individual universities. In the late 1940s, this meant nuclear reactors and particle accelerators, although, at that time, universities could still build forefront accelerators.

Brookhaven's first generations of these two types of machines were completed in the early 1950s. The Brookhaven Graphite Research Reactor (BGRR) began operating in 1950, and the Cosmotron, a proton synchrotron that was the first particle accelerator to surpass 1 billion electron volts (GeV) was dedicated in 1952. The completion of each machine had a significant impact upon the Lab because supporting facilities and experimental equipment had to be built, along with making special arrangements for power, security, waste disposal, and so forth. A hot lab, to handle nuclear engineering and chemistry, was built in 1951, and a medical research reactor, completed in 1958, was part of a new medical research facility. Two major, low-power accelerators also served Brookhaven low-energy nuclear physics and irradiation programs: a 3.5 million electron volts (MeV) Van de Graaff accelerator, and a 60-inch cyclotron. Both originally were built by industry, but underwent major renovations by Brookhaven scientists before they became suitable for research.

In the 1960s, BNL completed a second generation of large machines. The Alternating Gradient Synchrotron (AGS), a 33 GeV proton accelerator, was finished in 1960, and the High Flux Beam Reactor (HFBR), a research reactor providing thermal neutrons, began operation in 1965. Again, the new large facilities involved restructuring the BNL site in terms of support, organization, and power. The Brookhaven Linac Isotope Producer (BLIP) was attached to the end of the linear accelerator leading into the AGS, allowing medically useful radionuclides to be produced without interfering with AGS work. Another major research facility built during the 1960s was the Tandem Van de Graaff, completed in 1970, that for many years was the world's largest electrostatic accelerator. These machines have been continually upgraded and are world-class research facilities today.

At the end of the 1960s, Brookhaven underwent a period of major constriction, losing a sizable fraction of its employees. A large nuclear engineering program, oriented towards developing a liquid metal fuel reactor, was terminated. During 1966 and 1967 the Laboratory acquired approximately 960 acres adjacent to the eastern boundary, 200 acres adjacent to the northern boundary, and 750 acres adjacent to the southern boundary from Suffolk County and private land owners. In 1971 the North Tract, approximately 2,250 acres located on the north side of Route 25, was declared surplus Federal property and the majority was transferred to New York State for use as parkland. A small parcel of approximately 45 acres was acquired by the Shoreham-Wading River School District. Brookhaven pursued the possibility of having a third-generation accelerator from the 1960s onwards. In the mid-1970s, it seemed as though one would be built -- ISABELLE, a colliding-beam accelerator. A tunnel was completed early in the next decade, but the project was terminated before the accelerator could be built.

The late 1970s marked the development of a major new user facility at BNL, the National Synchrotron Light Source (NSLS) designed to exploit the use of synchrotron light as a research tool to study matter. Ground was broken in September 1978, and, in 1982, commissioning began on the Vacuum Ultraviolet (VUV) and x-ray storage rings. The NSLS received immediate, enthusiastic support from its user community, which included many major industrial firms, and in 1983, approval was received for expanding the NSLS building and adding several experimental beamlines. Today the NSLS supports approximately 2,400 users from more than 450 university, industrial, and government institutions on over 80 experimental beamlines.

In the 1980s, the development of heavy ion capability began at the AGS, through the construction of a transfer tunnel connecting the Tandem Van de Graaff accelerators to the AGS and an AGS Booster facility. In addition, the National Synchrotron Light Source was significantly expanded adding needed laboratory and office space

In 1991, the Laboratory received approval for the Relativistic Heavy Ion Collider (RHIC). This world-class nuclear physics accelerator builds upon the heavy ion capability developed at the AGS and uses the facilities constructed a decade earlier for the ISABELLE project. RHIC achieved its first successful operation in the summer of 2000, capping ten years of development.

In November 2000, the DOE designated 530 acres of BNL property as the Upton Ecological and Research Reserve to protect the Pine Barrens and foster ecological research. The most recent funded major facility is the Center for Functional Nanomaterials whose construction will begin in late 2005.

1.3 TOPOGRAPHY AND HYDRO-GEOLOGY

BNL is situated on the western rim of the shallow Peconic River watershed. The marshy areas in the northern and eastern sections of the site are part of the headwaters of the Peconic River. Depending on the height of the water table relative to the base of the riverbed, the Peconic River both recharges to, and receives water from the groundwater system. During sustained droughts, the river water typically recharges to the groundwater; with normal to above-normal precipitation, the river receives water from the aquifer

In general, the terrain of the BNL site is gently rolling, with elevations varying between 44- and 120-feet above mean sea level. The depth to groundwater from the surface of the land ranges from 5 feet near the Peconic River to about 80 feet in the higher elevations of the central and western portions of the site. Studies of Long Island's hydrology and geology in the vicinity of the Laboratory indicate that the uppermost Pleistocene deposits, composed of highly permeable glacial sands and gravel, are between 120- and 250-feet thick (Warren et al. 1968, Scorca et al. 1999). Water penetrates these deposits readily and there is little direct runoff into surface streams unless precipitation is intense. These sandy deposits store large quantities of water and are referred to as the Upper Glacial aquifer (Figure 2-2). On average, about half of the annual precipitation is lost to the atmosphere through evapotranspiration and the other half percolates through the soil to recharge the groundwater (Koppelman 1978[1]). The area has a high average recharge rate (22 inches per year) that varies seasonally.

The Long Island Regional Planning Board and Suffolk County identified the BNL site as overlying a deep-flow recharge zone for Long Island groundwater (Koppelman 1978, Suffolk County Department of Health Services 1987). Precipitation and surface water that recharge within this zone can replenish the Magothy and Lloyd aquifer systems lying below the Upper Glacial aquifer. Experts estimate that up to two-fifths of the recharge from rainfall moves into the deeper aquifers. The extent to which groundwater at the BNL site contributes to deep

[1] Scorca, M.P., Dorsch, W.R., and Paquette, D.E., 1999. Stratigraphy and Hydrologic Conditions at the Brookhaven National Laboratory and Vicinity, Suffolk County, New York, 1994-97. U.S. Geological Survey Water-Resources Investigations Report 99-4086.

flow recharge was confirmed through using an extensive network of shallow and deep wells installed at BNL and surrounding areas (Scorca et al. 1999[2]).

This groundwater system is the primary source of drinking water for both on- and off-site private and public supply wells and, hence was designated a sole source aquifer system by EPA. BNL uses approximately 1.8 million gallons of groundwater per day to meet potable water needs and heating and cooling requirements. Approximately 60 percent of the water pumped from BNL supply wells is returned to the aquifer through on-site recharge basins. About 22 percent is discharged into the Peconic River. Human consumption, evaporation (cooling tower and wind losses), and losses in the sewer lines account for the remaining 18 percent. An additional 3.6 million gallons of groundwater are pumped each day from remediation wells for treatment and then returned to the aquifer by way of recharge basins.

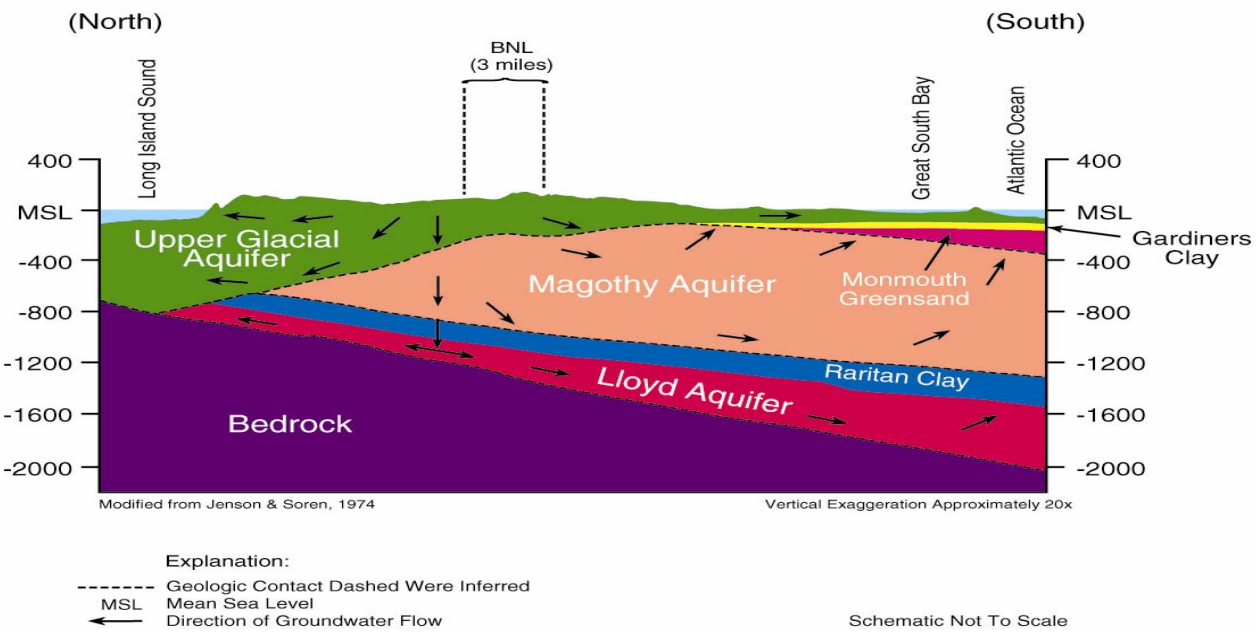


FIGURE 2-2 Generalized Geologic Cross Section in Vicinity of BNL

[2] Koppelman, L.E. (Editor), 1979. The Long Island Comprehensive Water Treatment Management Plan (Long Island 208 Study): Nassau-Suffolk Regional Planning Board. Hauppauge, New York (July 1978). Volumes I and II.

Section 3

Mission

MISSION

3.1 OVERVIEW

Brookhaven National Laboratory (http://www.bnl.gov/) is a large multidisciplinary research institution on Long Island, New York operated by Brookhaven Science Associates (BSA) under contract with the U.S. Department of Energy (DOE). With about 2,700 employees and an annual budget of more than $450 million, the Laboratory is one of the largest employers in Eastern Long Island. Its 363 buildings are located on about 5,300-acres on the western edge of Suffolk County's environmentally important Pine Barrens.

Since its founding in 1947 by the distinguished research universities of the Northeast, the Laboratory's primary mission has been to perform exceptional science in support of the DOE missions and to design, construct, and operate unique and complex facilities for the scientific community, all of which are conducted in a safe, secure, and environmentally sound manner.

As examples of BNL's extraordinary facilities, the Relativistic Heavy Ion Collider (RHIC)-Alternating Gradient Synchrotron (AGS) complex is the only accelerator facility in the world that can provide opportunities to study very high energy collisions of heavy ions and spin polarized protons. The National Synchrotron Light Source (NSLS) is unique in its class in the Northeast in its photon energy and brightness. Each year, these major facilities and BNL's smaller ones are shared by approximately 4,000 scientists from universities, National Laboratories, government agencies, and private industry in the U.S. and abroad. As such, they are among the premier tools for our Nation's research enterprise in support of the mission of the Office of Science as outlined in the "Office of Science Strategic Plan". Looking to the future, and to the priorities of the Office of Science that are contained in "Facilities for the Future of Science: A Twenty-Year Outlook", BNL is fortunate to have been named as the site of three of these facilities, namely NSLS-II, RHIC-II, and eRHIC (the latter two, with RHIC and the Quantum Chromodynamics on a Chip (QCDOC) computers, will enable BNL to be known as a QCD Lab). It is likely that BNL will contribute to six more of these facilities.

BNL's thirteen scientific departments and divisions are grouped in five directorates: Nuclear and High-Energy Physics, Basic Energy Sciences, Light Sources, Life Sciences, and Energy, Environment & National Security that carry out research at the forefront of science, and engage in joint scientific ventures with scientists from universities and industry, utilizing our world class facilities. The multidisciplinary nature of the Laboratory's departments fosters extensive collaborative research that will open new scientific frontiers, particularly at the interface of the life and physical sciences. More importantly, these departments also serve the crucial function of training the next generation of scientists, another strategic goal of the DOE.

During the past year, prior to construction of the Center for Functional Nanomaterials (CFN), BNL has already provided access to our tools for nanoscience to nearly fifty users through the CFN jumpstart program. As our vision for the future, which is outlined below, becomes a reality, we expect that the size of the user community at our facilities and the opportunities for mentor-intensive training will grow.

3.2 LEADERSHIP AREAS

Over the next several years, BNL's vision is to bring the power of science and technology to bear on compelling questions, with the goal of becoming the best science laboratory in the world in chosen areas. Toward this objective, we have identified key areas that will enable us to assume or maintain a world leadership role, and as a consequence, that will support the Laboratory into the future. These strengths are intimately tied to current and anticipated BNL facilities, and are spread across and among BNL's scientific directorates. However, as we move forward, the single most important factor for making our vision a reality is the seamless alignment of exceptional science, outstanding operations, and developing and strengthening relationships with key stakeholders. The following section describes our strategy (summarized in Table 3-1) to carry out exceptional science through the integration of our leadership areas with current and anticipated BNL facilities, and the goals expressed in the "DOE Office of Science Strategic Plan".

BNL's leadership areas, which provide resource foundations that enable great science, are:

- **Quantum Chromodynamics (QCD**) – With heavy ion collisions at RHIC, BNL will be the lead laboratory in experimental and theoretical high-energy nuclear physics, and as such, will be preeminent in relating the physical phenomena predicted by QCD, to measurements made in the RHIC experiments.
- **Nucleon Spin** – BNL will use collisions of RHIC's polarized proton beams that are unique worldwide for the foreseeable future, to elucidate how quarks and gluons combine to produce the spin angular momentum of the nucleons; advances in lattice gauge theory will make it possible to directly compare the measured nucleon spin structure with theoretical predictions from QCD.
- **Beyond the Standard Model** – KOPIO and MECO, two new experiments planned at the AGS, will test the Standard Model of particle physics using rare, symmetry-violating processes to probe mass scales beyond the reach of the Large Hadron Collider (LHC). BNL is also the host laboratory for U.S. participation in the LHC ATLAS experiment at CERN that will provide clues to the origin of mass and search for possible supersymmetric forces in nature. BNL will manage the U.S. roles in physics research, computing and future upgrades for the ATLAS experiment.
- **Neutrinos** – BNL plans to construct a "Super Neutrino Beam" at the AGS that empowers the Very Long Baseline Neutrino Experiment (VLBν) that will address all the remaining questions about neutrino masses, coupling, and CP-violation by neutrinos.
- **Correlated Systems** – Understanding the pairing mechanism leading to high Tc superconductivity and related phenomena represents the biggest challenge in condensed matter physics today. With its strong interdisciplinary programs in theory and experiment, BNL is uniquely positioned to make significant inroads into understanding the nature of this phenomenon.
- **Nanocatalysts** – Building on our established strengths in homogeneous and heterogeneous catalysis, and growing capabilities in reactivity of nanoscale structures, BNL is focusing on the challenge of rational design of catalysts. An enhanced theoretical program emphasizing computational theory at the nanoscale will be coupled with advanced characterization tools and novel synthetic capabilities at BNL's premier facilities: the CFN, NSLS, and eventually NSLS-II.
- **Aerosols** – BNL is a world leader in atmospheric chemistry, particularly studies related to the creation and evolution of aerosols, and their role in the global radiation balance

that is crucial to predictions of climate change. Our ultimate goal is to improve climate models and increase our ability to distinguish between natural and anthropogenic climate change. Toward this end, we have established a group of experts in regional climate models with an emphasis on aerosols.

- **Microbial/Plant Systems** – BNL is developing key technologies in genomics and gene regulation for the analysis of complex microbial and plant communities, and the computational capabilities for modeling and engineering them. We will strengthen them further to develop world-class competencies that address the needs of the OBER Genomics: Genomes to Life (GTL) initiative, particularly Facility IV. In addition, we are enhancing our program in the area of plant production of useful materials using biochemical, genetic, structural, and quantitative approaches.
- **Brain Health** – The goal of the Center for Translational Neuroimaging is to position BNL and our partners as world-leaders in imaging the human brain. It will focus on brain development and maturation, and how it adapts to the environment over a lifetime at the molecular and structural level, the effect of genotype on brain chemistry, structure, and behavior, and the impact of addiction on the brain.
- **Computational Biology** – BNL will become the leading center for computational biology as it builds up an interdisciplinary team of first-rate scientists and software experts that will use and operate a leadership class machine as a national user facility. In FY '05, a Computational Science Center was created as a nucleus to facilitate this initiative.

3.3 CONNECTION OF LEADERSHIP THEMES TO MAJOR PRESENT AND FUTURE FACILITIES

The Laboratory's leadership themes rely on present and future facilities to ensure the DOE's goal of enabling great science is met, and to achieve our goal of becoming the best science laboratory in the world in chosen areas. BNL is home to numerous extraordinary facilities that support our scientific initiatives and our user community, many of which were described previously in our "2000 Strategic Facilities Plan", Institutional Plans, and the 2005 Business Plan Presentation. Table 3-2 is a snapshot of the number of experimenters at selected user facilities. The following section highlights selected facilities that we project will have the greatest impact on our science and technology priorities and user needs over the next decade.

3.3.1 Nuclear and High Energy Physics

- **QCD Lab**
  - Based on data from the first three years of operations, RHIC, a world-class facility for nuclear physics, has convincingly demonstrated the existence of a novel hot and dense form of nuclear matter consisting of quarks and gluons, but it is a state quite different and even more remarkable than had been predicted. Instead of behaving like a gas of free quarks and gluons, as was expected, the matter created in the heavy ion collisions appears to be more like a liquid. Results reported earlier reveal a "jet quenching" effect that arises from quarks being strongly absorbed as they attempt to traverse it, which demonstrates that the density in this new form of matter is much higher than can be explained by a medium comprised of ordinary nuclear matter.

In the future, as the RHIC complex evolves to a QCD Lab, it will be at the forefront of an international effort to further study this super-dense matter form of matter and to relate its properties to the theoretical predictions of **QCD**. In addition, the RHIC-Spin program will make the first comprehensive measurements of **gluon spin** effects inside the proton and study more questions related to the weak interactions.

- In order to ensure the Laboratory's preeminence beyond the physics discovery phase into the second decade of the 21st century, BNL proposes to increase the time-averaged luminosity of the RHIC collider by a factor of ten for heavy ion collisions, using an electron-beam cooling technique for RHIC's full-energy heavy ion beams, and to upgrade the detectors to provide improved sensitivity to the quark, direct-photon, and lepton processes in the earliest stages of the collisions.
- Following these upgrades, a 10 GeV energy electron ring and a new experimental detector, together with a polarized electron source, will be added to RHIC to create eRHIC, the world's first electron-heavy ion collider. This new facility will allow the formation and precision study of another fundamental and universal form of gluonic matter, the strongly interacting color glass condensate (CGC), also predicted by **QCD** theory. Data collected at RHIC already show plausible evidence of the CGC.

- **AGS** – The primary mission of the AGS, a premier particle accelerator, will be to maintain its role as the injector to RHIC. However, the Laboratory is expanding its use for other agencies, such as the National Science Foundation (NSF) and National Aeronautics Space Administration (NASA) to fulfill their scientific mission needs. A recent success was the construction of the NASA Space Radiation Laboratory at the AGS. BNL hopes to have similar success working with the NSF on the Rare Symmetry Violating Processes (RSVP) project, where the MECO and KOPIO experiments will perform extremely sensitive measurements to test the Standard Model of particle physics. KOPIO will be the first experiment to observe the exceedingly rare decay of a kaon into three other particles, a neutral pion, a neutrino and an anti-neutrino. MECO's goal is to detect cleanly the conversion of a muon into an electron, a process that is forbidden by the Standard Model. Discrepancies from what is expected by Standard Model predictions would unambiguously signal the presence of new physics, **Beyond the Standard Model**. Following RSVP, and using an intensity-upgraded AGS, BNL plans to construct a "Super Neutrino Beam" to deliver an intense beam of neutrinos over a flight path of more than 2000km to the "Deep Underground Science and Technology Laboratory" (DUSEL), a project being planned and initiated by the NSF. We imagine that BNL's Super Neutrino Beam will be optimal for the **neutrino** oscillation physics element of the DUSEL scientific program. The Super Neutrino Beam is one of DOE's far-term priorities listed in the "Facilities for the Future of Science: A Twenty-Year Outlook", and the neutrino oscillations program in DUSEL is noted in the 2004 Office of Science and Technology Policy (OSTP) Strategic Plan, "Physics of the Universe".

3.3.2 Basic Energy Sciences

- **NSLS** – The NSLS serves approximately 2400 users per year from ~400 academic, industrial and government institutions, of which about 60% are affiliated with institutions in the Northeastern U.S. The NSLS is a vital resource for this strong research community, and provides essential scientific tools for strategic programs at BNL in the Basic Energy, Life, and Environmental Sciences, and Nuclear Physics. Over the next several years, the NSLS will continue to enable scientific advances to the Northeast research community by providing increased user support and upgrading beamlines and instrumentation for end-stations. The NSLS is absolutely crucial for pursuing BNL's

Grand Challenge problems in Basic Energy Sciences, i.e., solving the **strongly correlated electron** problem, making predictive design of **catalysts** a reality, and producing materials at the interface of the life and physical sciences.

- **NSLS-II** – The NSLS-II, a highly advanced medium energy synchrotron, will deliver world leading brightness and flux across the energy spectrum up to ~20keV, an increase over those of the NSLS by more than 10,000 and 10 times, respectively. The unique high resolution capability of NSLS-II will open up new regimes of scientific discovery and investigation, and enable exploration of the correlation between nanoscale structure and function, the mechanisms of molecular self-assembly and the science of emergent behavior, especially for **correlated electron systems**. The enhanced spatial and temporal resolutions that can be probed by NSLS-II will be crucial for the advanced materials needed for hydrogen production and storage, and for fuel cell technologies. The advanced capabilities of NSLS-II are essential to continue BNL's world leading programs in the Basic Energy, Life and Environmental Sciences, and to serve the Nation's science user community. BNL is awaiting DOE's approval of CD-0 for NSLS-II.
- **Center for Functional Nanomaterials (CFN)** – The site dedication for the CFN, the first new scientific facility to be built at BNL this decade, occurred in mid-April 2005 with the official groundbreaking to take place after CD-3 approval is received. As one of five national DOE nanotechnology centers, the CFN will provide state-of-the-art capabilities for the fabrication and study of nanoscale materials with a broad emphasis on atomic-level tailoring of nanomaterials to achieve a desired structure or function. A science-based user facility, the CFN will become a focus of nanoscience research in the Northeast with science programs centered on **nanocatalysis**, electronic nanomaterials, and soft matter and biomaterials. A long-term goal is to have an impact on key DOE challenges, such as energy efficiency and conversion, the hydrogen economy, and environmental protection. The combination of the CFN and NSLS-II will offer researchers a unique opportunity to develop new nano-based materials at the CFN, and then explore their characteristics at NSLS-II. At the institutional level, BNL's top priority will be on building the capabilities of CFN and NSLS-II over the next 2-4 years.

3.3.3 Environmental and Life Sciences

- **FACE** – Although not located on the BNL campus, BNL developed and maintains a leadership role in coordinating this suite of Free Air Carbon Dioxide Enrichment (FACE) facilities across the U.S. to study the effects of global changes on ecosystems. In the future, as a component of BNL's **Microbial/Plant Systems** initiative, we will establish a cutting-edge plant physiology capability focusing on the analysis of metabolites and modeling, aimed at understanding the mechanisms controlling plant responses to carbon dioxide enrichment and other climate change variables.
- **GTL –** BNL is working to craft a path forward for collaboration on the planned GTL facilities. At BNL, the Biology Dept. has put programs in place dealing with high throughput technologies for protein expression, characterization and imaging to support the OBER GTL programs and Facilities I and III. Similarly, to meet the goals of Facility IV, BNL is developing capabilities to analyze and model microbes and complex microbial communities through experiment and computation as part of the **Microbial/Plant Systems** initiative.
- **Imaging Institute** – We envision creating an Imaging Institute for interdisciplinary and translational research as a multi-lab partnership with our world-class radiotracer group, which develops tools for analyzing **brain chemistry** in health and disease, at its core. It

will incorporate multimodality imaging on spatial scales from the nanometer to the millimeter, and time scales from nanoseconds to minutes. With strong ties to the CFN, NSLS, and NSLS-II, it will image structures and functions in real time, and accelerate needed technology advances at the interface of the life and physical sciences.

3.3.4 Advanced Scientific Computing Research: Nuclear and High Energy Physics, Basic Energy, Environmental & Life Sciences

- **Computing Facility** – Underpinning all our leadership themes is the need for an advanced computing facility. In FY 2005, BNL will dedicate the RIKEN Brookhaven Research Center 10-Tflop QCDOC machine, funded by RIKEN, and will complete another 10-Tflop QCDOC super computer, funded by DOE, for the U.S. lattice gauge theory community. We will build our advanced scientific computing on our current capabilities in computational science, the RHIC Computing Facility, and the U.S. ATLAS Tier I Center, and our strong interactions with computer scientists and applied mathematicians at the State University of New York at Stony Brook and Columbia University.

In summary, the foregoing themes and facilities represent BNL's plans that will assure the continuing health and mission capability from the present into the next decade and beyond. Besides those initiatives listed, the Laboratory is investing in others whose scale is not quite as large, and individual research groups are pursuing programmatic initiatives that extend ongoing efforts.

TABLE 3-1 Alignment of the DOE Office of Science & BNL Strategic Goals with Key Research Facilities

DOE Strategic Plan Goal	World-Class Scientific Research Capacity	
DOE Office of Science Overarching Goal	Provide Resource Foundations that Enable Great Science	
BNL's Strategic Goal	Become the Best Science Laboratory in the World in Chosen Areas	
Critical Outcome	Deliver Innovative, Forefront Science and Technology Aligned with DOE Strategic Goals in a Safe, Environmentally Sound, and Efficient Manner and Conceive, Design, Construct, and Operate World-Class User Facilities	
DOE Office of Science Strategic Plan Goal	BNL Leadership Theme	Key Research Facilities Needed
5. Explore Nuclear Matter-from Quarks to Stars	QCD	QCD Lab, AGS, Computing Facility
5. Explore Nuclear Matter-from Quarks to Stars	Nucleon Spin	QCD Lab, AGS, Computing Facility
4. Explore Fundamental Interactions of Energy, Matter, Time, Space	Beyond the Standard Model	AGS, Computing Facility
4. Explore Fundamental Interactions of Energy, Matter, Time, Space	Neutrinos	AGS, Computing Facility
1. Advance Basic Energy Science for Energy Independence	Correlated Systems	NSLS, NSLS-II, CFN, Imaging Institute, Computing Facility
1. Advance Basic Energy Science for Energy	Nanocatalysts	NSLS, NSLS-II, CFN, Imaging Institute, Computing Facility

DOE Strategic Plan Goal	World-Class Scientific Research Capacity	
Independence 2. Harness the Power of Our Living World		
1. Advance Basic Energy Science for Energy Independence 2. Harness the Power of Our Living World	Aerosols	NSLS, NSLS-II, CFN, Imaging Institute, Computing Facility
1. Advance Basic Energy Science for Energy Independence 2. Harness the Power of Our Living World	Microbial/Plant Systems	NSLS, NSLS-II, CFN, Imaging Institute, Computing Facility, FACE, GTL
2. Harness the Power of Our Living World	Brain Health	NSLS, NSLS-II, CFN, Imaging Institute, Computing Facility
2. Harness the Power of Our Living World 6. Deliver Computing for the Frontiers of Science	Computational Biology	Computing Facility, GTL

Table 3-2 Experimenters at User Facilities (9/30/04)

Facility	Number of Experimenters	Number of Organizations	Percentage Use
RELATIVISTIC HEAVY ION COLLIDER			
BNL	120	1	12.7%
DOE Lab	85	8	9.0%
Non-DOE Government	3	2	0.3%
U.S. University	399	47	42.3%
U.S. Industry	0	0	0.0%
Foreign Lab	175	30	18.5%
Foreign University	161	49	17.1%
Foreign Industry	0	0	0.0%
Other	1	1	0.1%
Total	944	138	100.0%
ALTERNATING GRADIENT SYNCHROTRON			
BNL	17	1	7.8%
DOE Lab	43	7	19.6%
Non-DOE Government	3	1	1.4%
U.S. University	73	28	33.3%
U.S. Industry	2	2	0.9%
Foreign Lab	47	11	21.5%
Foreign University	32	15	14.6%
Foreign Industry	0	0	0.0%
Other	2	2	0.9%
Total	219	67	100.0%

Facility	Number of Experimenters	Number of Organizations	Percentage Use
TANDEM VAN DE GRAAFF COMPLEX			
BNL	5	1	3.7%
DOE Lab	7	1	5.2%
Non-DOE Government	21	4	15.7%
U.S. University	10	2	7.5%
U.S. Industry	76	28	56.7%
Foreign Lab	1	1	0.7%
Foreign University	1	1	0.7%
Foreign Industry	13	9	9.7%
Other	0	0	0.0%
Total	134	47	100.0%
ACCELERATOR TEST FACILITY			
BNL	9	1	24.3%
DOE Lab	0	0	0.0%
Non-DOE Government	0	0	0.0%
U.S. University	18	3	48.6%
U.S. Industry	3	3	8.1%
Foreign Lab	3	3	8.1%
Foreign University	3	3	8.1%
Foreign Industry	1	1	2.7%
Other	0	0	0.0%
Total	37	14	100.0%
NASA SPACE RADIATION LABORATORY			
BNL	11	1	6.7%
DOE Lab	31	3	18.9%
Non-DOE Government	14	5	8.5%
U.S. University	77	30	47.0%
U.S. Industry	8	4	4.9%
Foreign Lab	6	3	3.7%
Foreign University	14	7	8.5%
Foreign Industry	0	0	0.0%
Other	3	1	1.8%
Total	164	54	100.0%
SCANNING TRANSMISSION ELECTRON MICROSCOPE			
Laboratory	6	1	11.3%
Other DOE Laboratory	3	1	5.7%
Non-DOE U.S. Government	6	4	11.3%
U.S. Universities	27	14	50.9%
U.S. Industry	N.A.	N.A.	

Facility	Number of Experimenters	Number of Organizations	Percentage Use
Foreign Government Labs[a]	N.A.	N.A.	
Foreign Universities	10	6	18.9%
Foreign Industry	N.A.	N.A.	
Other	1	1	1.9%
Total	53	27	100%
NATIONAL SYNCHROTRON LIGHT SOURCE			
Laboratory	240	1	10.4%
Other DOE Laboratory	56	9	2.4%
Non-DOE U.S. Government	85	18	3.7%
U.S. Universities	1362	157	59.2%
U.S. Industry	119	47	5.2%
Foreign Government Labs[a]	31	19	1.3%
Foreign Universities	223	82	9.7%
Foreign Industry	15	10	0.7%
Other	168	40	7.3%
Total	2299	383	100%

CENTER FOR FUNCTIONAL NANOMATERIALS (thru Jumpstart Access)			
Laboratory	9	1	18.8%
Other DOE Laboratory	1	1	2.1%
Non-DOE U.S. Government	0	0	-
U.S. Universities	34	19	70.8%
U.S. Industry	0	0	-
Foreign Government Labs[a]	0	0	-
Foreign University	4	3	8.3%
Foreign Industry	0	0	-
Other	0	0	-
Total	48	24	100%
GRAND TOTAL			
Laboratory	417	1	10.4%
Other DOE Laboratory	226	29	6%
Non-DOE U.S. Government	132	31	3.3%
U.S. Universities	2000	259	46.2%
U.S. Industry	208	85	5.1%
Foreign Government Labs[a]	263	73	9.7%
Foreign Universities	448	162	13.4%
Foreign Industry	29	25	1.3%
Other	175	50	4.6%
Total	3898	754	100%

Section 4

Land Use

LAND USE

4.1 INTRODUCTION

In 1995 BNL did a comprehensive review of current, projected future, and postulated post-closure land use as part of the development of clean-up standards for the various environmental remediation activities which were occurring. The results were documented in "Brookhaven National Laboratory, Future Land Use Plan dated August 31, 1995. In 2001 an informal review of the document was requested by the manager of BNL's Environmental Management projects. A team composed of Environmental Management Project, Environmental Services Division, and Plant Engineering Infrastructure Management members reviewed the Plan. The team considered the following additional information as part of the review process:

- The 1995 Future Land Use Plan
- Then current environmental restoration plans
- Site Master Plan 2000
- Strategic Facilities Plan 2000
- BNL Institution Plan, Draft 2000

The conclusions were as follows:

- The land use in 2000 was essentially the same as in 1995 as there was little change to developed land.
- The Site Master Plan projected future projects had very minor impact on undeveloped land. The main impact would be with the development of the Plant Engineering Complex which would develop additional land on South Rochester Street.
- The BNL Institutional Plan identified possible expansions of the Relativistic Heavy Ion Collider (RHIC) and the possible construction of a Muon Collider Storage Ring. Both these projects would impact undeveloped land.
- No changes to the post-closure scenario were envisioned.
- Therefore, no update to the plan was needed.

For the preparation of this plan an informal review of the current and planned land use considered the following documents:

- Site Master Plan Update 2002
- Environmental Management Baseline 2004
- Science and Technology "Agenda" 2004

The resulting conclusions were as follows:

- The land use in 2004 is essentially the same as in 1995 as there was little change to developed land
- The Site Master Plan 2004 updates had little impact on undeveloped land from what was identified in 2000. The only impact was the relocation of the proposed Energy Science Building to a parcel that once contained a building avoiding further land development.

- The Science and Technology Agenda 2004, the basis document for identifying future scientific initiatives still identified expansion in the RHIC area for eRHIC and RHIC-II. The Muon Collider is no longer under evaluation. However, BNL is evaluating proposing construction of a Super Neutrino Beam which could impact undeveloped land. (Figure 4-3)

4.2 CURRENT LAND USE

The Laboratory site development has been influenced by the buildings and utilities inherited from the former Camp Upton. The general location and arrangement of the roads, buildings, and utilities are a legacy of the former army base. The physical plant has been gradually upgraded over the last 60+ years, but many of the original Army elements are still in use and will continue to be accommodated in future planning.

To the north and west of BNL, the area is largely wooded, privately owned, and zoned for residential development. The area between Upton Road, William Floyd Parkway, and Princeton Avenue will be kept as a buffer zone with forest and grassy areas. The anticipated expansion of major Laboratory buildings is to the east (NSLS II) and in the RHIC area in the north central area of the site. BNL's holdings to the east are primarily woodlands and wetlands and plans are to leave them in their natural state for the foreseeable future. Part of this area has been dedicated as the Upton Ecological Research Reserve. DOE has funded the construction of the Center for Functional Nanomaterials. This will be constructed on the site currently occupied by Building 193 which will be demolished later this year. The Research Support Building Phase I is under construction in the core area of the site on previously developed land. Therefore, no impact on land use will occur.

Most of BNL's principal facilities are located near the center of the site. The developed area is approximately 1,650 acres of which about 500 acres were originally developed for Army use. Approximately 200 acres are occupied by various large specialized research facilities. Outlying facilities occupy about 550 acres; these include the sewage treatment plant, research agricultural fields, housing, and fire breaks. The balance of the site is largely wooded.

At present, there are 363 buildings in use with a total gross floor area of approximately 4.1 million square feet, of which 860,000 million square feet is accelerator space. Permanent buildings constructed since 1947 account for about 75% of the floor space of the Laboratory. There is a 50-50 mix of concrete-block masonry and wood structures. Approximately 920,000 square feet is comprised of World War II wood structures and wood frame postwar additions, which currently are being used for housing. Building uses include the following:

- High-bay industrial type facilities with overhead cranes;
- Research facilities for biomedical, chemical, physics, and laser users, and scientific and technical libraries;
- Offices;
- Fabrication facilities, including machine shops and craft shops;
- Commercial facilities, including post office, bank, and gas station; and
- Recreational facilities, including tennis courts, swimming pool, and gymnasium.

The total road system consists of 29 miles of paved roads and 14 miles of dirt and gravel roads. There are approximately 83 acres of paved areas and approximately 4,000 parking spaces.

The rich history of the BNL site has resulted in several areas and structures being identified as cultural resources, (e.g., historically significant). The BNL Cultural Resource Management Program is responsible for ensuring that the Laboratory fully complies with the numerous cultural resource regulations. Three structures/sites were determined to be eligible for listing on the National Register of Historic Places: the World War I trenches associated with Camp Upton, the Brookhaven Graphite Research Reactor (BGRR) complex, and the High Flux Beam Reactor complex.

Several networks of trench-warfare training earthworks are scattered through the forests at BNL. One of the more distinct trench networks clearly follows the layout depicted in the 1919 Army Field Manual. Last used by many of the 30,000+ soldiers training at Camp Upton in 1918-1919, the BNL trenches may be the only surviving examples of World War I earthworks in the United States.

The Brookhaven Graphite Research Reactor (BGRR) was the first nuclear reactor constructed to investigate the peaceful use of the atom. While much of this facility may be dismantled as part of the decommissioning project, its historic significance has been preserved through production of a history video and establishment of a records archive.

The silver dome of the High Flux Beam Reactor (HFBR) has been a distinct architectural landmark on the BNL site since the early 1960s.

Additional cultural resources include the following: buildings designed by renowned architects (Berkner Hall, and the Chemistry Building); house sites dating to the early 1800s; scientific equipment displays; unique scientific study areas (Gamma Forest site); and structures representative of the Civilian Conservation Corp era (Building 30) and WW II (Building 120). These and other culturally significant assets are managed through the Cultural Resources Program, so that they remain available for public and scholarly interpretation.

The Land Use process categorizes current land use into the following categories:

- Open space/wilderness - including protected wildlife and critical habitats, scenic vistas;
- Industrial/commercial - e.g., research and development facilities, offices, manufacturing plants, rail yards, staging areas, power plants, utility systems, and waste management facilities;
- Residential - e.g., permanent and temporary housing, dormitories;
- Agricultural - e.g., farming, grazing, and aquaculture;
- Recreational - including passive and active uses;
- Native American - including traditional, cultural, and religious uses.

Of these potential six categories, four were considered applicable for the BNL site; open space, industrial/commercial, agricultural, and residential. Figure 4-2 shows the current land uses of the BNL site “zoned” into these categories.

4.2.1 Open Space

Open space encompasses approximately 75% of the site area, which is mostly in its natural state with the exception of fire breaks, utilities' right of ways, recreation fields, and environmental monitoring wells and stations. This area includes floodplains and wetlands. These floodplain areas border the headwaters of the Peconic River in the northern area of the site, while the wetlands are predominantly in the eastern section of the site. The Laboratory facilities, with the exception of portions of the RHIC ring, do not encroach on the one-hundred-year floodplains or wetlands. Some 30 species of mammals and 180 species of birds have been recorded in the open spaces. The open space surrounding the developed central area of the site forms a buffer zone for the industrial/commercial land use areas.

4.2.2 Industrial/Commercial

The designated national user facilities—the Relativistic Heavy Ion Collider (RHIC), Alternating Gradient Synchrotron (AGS), National Synchrotron Light Source (NSLS), Tandem Van de Graaff, Accelerator Test Facility (ATF), Scanning Transmission Electron Microscope (STEM), and NASA Space Research Lab (NSRL) serve the scientific user community from both the United States and abroad and are currently the centerpieces of the industrial/commercial land use area. BNL is constructing an additional user facility, the Center for Functional Nanomaterials (CFN). Approximately 7.5 acres of Laboratory site is leased to the U.S. Department of Commerce for the NEXRAD weather radar facilities. These facilities are part of a National Weather Forecasting Network operated by the National Oceanic and Atmospheric Administration (NOAA). Other facilities housing scientific departments, scientific support divisions, and support divisions are also within this industrial/commercial area. With the exception of the Sewage Treatment Plant and the Waste Management Facility, the industrial/commercial facilities form the developed central area of the site.

The majority of the Laboratory's buildings are located in the industrial/commercial area. At present, 35 wooden buildings and 276 portable structures provide temporary space. These structures and wooden buildings are planned to be replaced in the future by permanent facilities. The existing facilities of the site's core area can broadly be characterized into four functional zones: support services, research machines, physical sciences laboratories, and life sciences laboratories. This functional layout was influenced by the layout of the basic infrastructure, utilities, and other services.

The initial infrastructure and utility systems supporting the industrial/commercial functions were installed by the United States Army as part of Camp Upton. Since 1947, the Laboratory has made extensive additions and has modernized the systems to meet the needs of the expanding and changing research programs. The utility systems consist of steam, chilled water, compressed air, potable and process water, sanitary and storm wastewater, electric power, and telecommunications.

4.2.3 Agricultural

Approximately 70 acres of the site are used for growing crops, mainly corn, for biological research. However, other crops have been grown in the past and are likely to be grown in the future. These are located in the eastern area of the site and are surrounded by natural vegetation and open space.

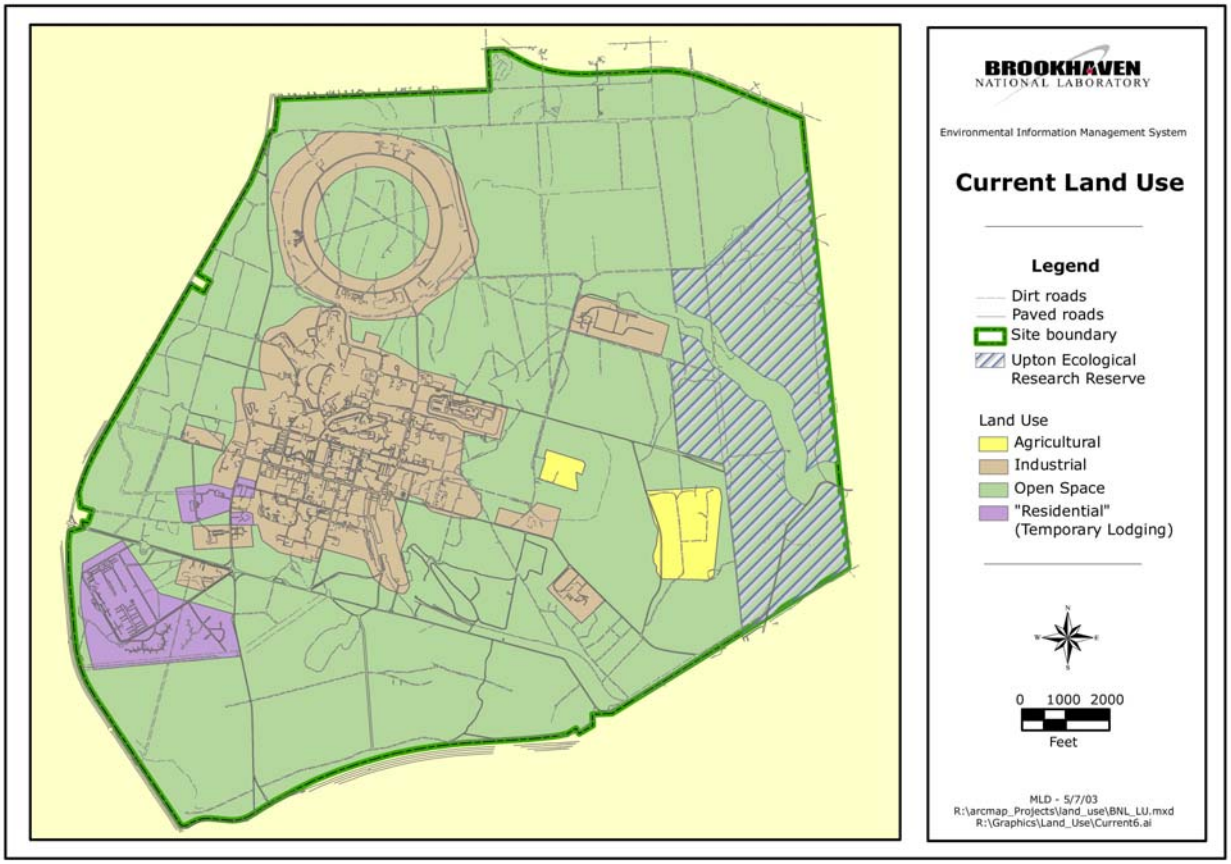


FIGURE 4-1 Current Land Use

4.2.4 Residential

The Laboratory faces increasing demands to accommodate both U.S. and foreign users, visitors, and other staff with temporary appointments at the Laboratory. The housing inventory, largely inherited from the Army, is composed of summer cottages, mobile homes, apartments, efficiencies, guest rooms, dormitory rooms, and houses. Approximately 170 acres are designated for this purpose. The 26 wood buildings used for apartments, dormitory structures and the guest rooms building are Army buildings converted for residential use. In addition there are 30 summer cottages built in 1968. The bulk of this residential area lies in the southwest segment of the site. A natural growth of scrub oak and pine surrounds the residential complex which consists of the apartment area, cottages, efficiencies, and BNL's child development facility. The growth in research and education programs and conference activity continues to increase the need for additional housing and conference facilities.

4.3 FUTURE LAND USE

The Laboratory has in place a Site Master Plan, produced in 2000, and updated in 2004. Scientific initiatives and infrastructure requirements are identified in the Science and Technology "Agenda" and the Business Plan. Specific areas of the site have been designated and are held in reserve for future programmatic and infrastructure development initiatives to ensure BNL remains aligned with DOE's vision for the future. Planning efforts aim to optimize the physical plant to support the needs of BNL as a forefront scientific research institution. The planning process addresses the need for new facilities to meet emerging research needs while making maximum use of existing facilities and assets. Planning for future land use is accomplished through meetings, program reviews, interaction with DOE, and contributions from Laboratory staff, collaborators, and external stakeholders.

The Laboratory will continue to fulfill its mission of constructing and operating large experimental facilities that encourage the participation and support of the outside user communities (scientists and engineers from the United States and abroad) to maintain U.S.'s pre-eminence in basic research. The planned research facilities, when built, will substantially increase the number of visitors and users.

It is BNL policy to minimize the generation of hazardous and radioactive waste and potential impacts of associated operations on the environment. Activities which occurred in the 1940s, 1950s and 1960s created several areas of environmental concern that are being addressed. The process of systematically identifying and characterizing these areas for remedial actions has been ongoing for some time and is described further in Sections 7. These actions, which are part of the overall Environmental Restoration program, will influence the proposed future land uses for the site. In addition, BNL has compiled a list of legacy environmental issues, not part of the Environmental Restoration program. Several of these issues will restrict land use until cleanup can be done. It has also been the Laboratory's policy to minimize the impact of development on the environment. The Laboratory's planning efforts also consider the goals of the Pine Barrens Plan, the Special Groundwater Protection Plan, and the L.I. Comprehensive Wastewater Management Plan.

The Laboratory plans to preserve as much area as possible in its natural state while carrying out its mission to support the DOE through leading-edge user research facilities, research and technology development, educational efforts, and industrial involvement. In November 2000, the DOE designated 530 acres of BNL property as the Upton Ecological and Research Reserve in order to protect a unique ecosystem of Pine Barrens forests and wetlands, and foster ecological research and educational opportunities.

The BNL site will continue to accommodate the scientific missions of the Laboratory as currently envisioned for at least the next twenty years. The future development of the site is based on the continued need for large, complex research user facilities in a variety of fields of science and technology. The Laboratory must continue to improve existing facilities to maintain state-of-the-art capability and is planning to build, during the next decade, the next generation of user facilities of even greater scientific capability and utility.

Facilities required to house proposed and planned scientific initiatives will increase the Laboratory's developed areas. Figure 4-3 shows the future land uses areas "zoned" as industrial/commercial, open space, agricultural, and residential. Infrastructure must support the new research initiatives. Rehabilitation of most utilities and some increases in plant capacity are planned.

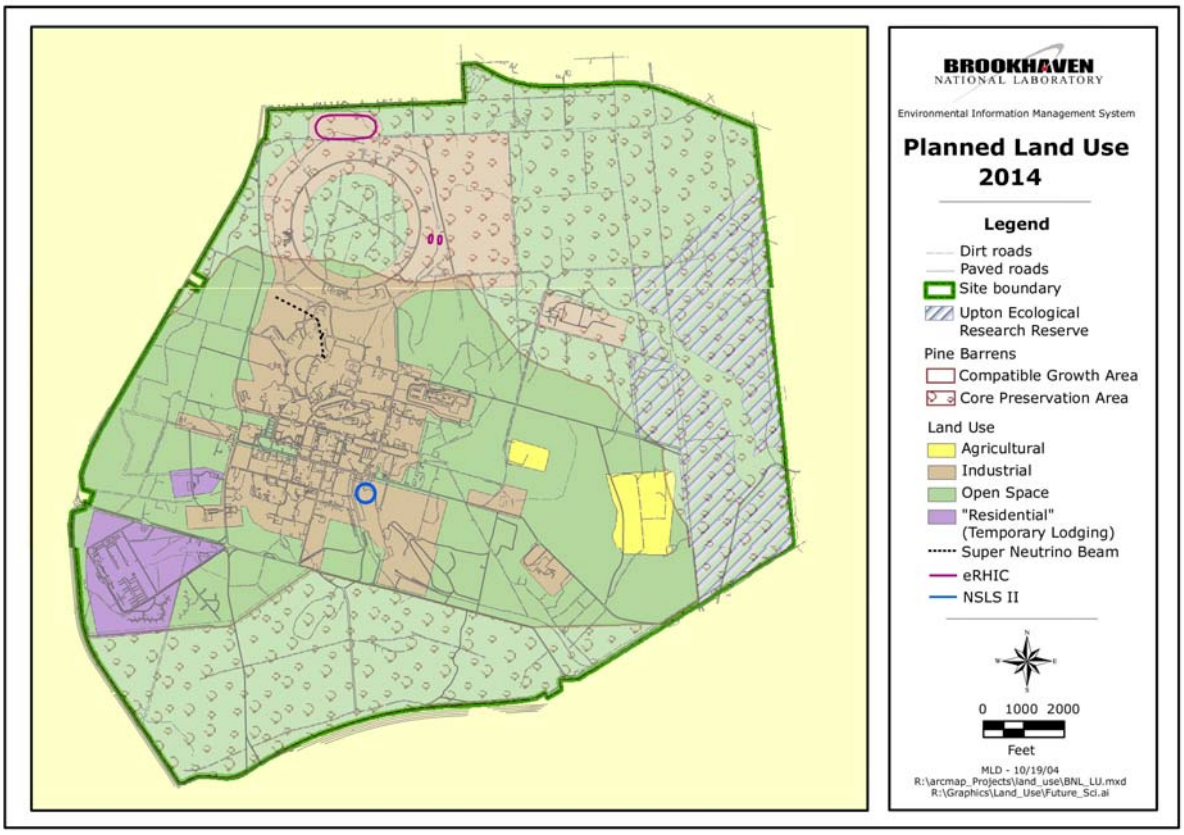


FIGURE 4-2 Future Land Use

4.3.1 Open Space

Open space, which includes the undeveloped area may be reduced 10-15% due to construction of scientific research facilities currently under evaluation including NSLS II, QCD Lab and the Super Neutrino Beam. No construction funding has been yet requested for these projects. Further land development may be required to accommodate a consolidated Plant Engineering Complex, proposed in the Site Master Plan. All remaining undeveloped areas are planned to remain in their natural state. The floodplain areas are not likely to be affected. In the unlikely event that the floodplain area must be encroached, plans to minimize impacts and accommodate exceptional events such as a “One-Hundred-Year” storm will be developed.

4.3.2 Industrial/Commercial

In the Industrial/Commercial Land Use category specific areas are held in reserve for future programmatic and site development initiatives. In general, the areas to the north (RHIC expansion) and east (NSLS-II) of the central developed area may be developed to contain future major research facilities. The Laboratory plans to construct new facilities and consolidate out of WWII facilities into “program-centered” departmental and divisional complexes and several multi-discipline facilities. These complexes will be accommodated in

the currently developed area containing the industrial/commercial facilities. It is anticipated that additional industrial/commercial type facilities will be required for these new endeavors.

4.3.3 Agriculture

The approximate 70 acres currently used for growing crops for biological research will most likely remain as agricultural fields for use by the BNL Biology Department. However, no expansion of this use is anticipated.

4.3.4 Residential

While much of BNL's current housing is expected to remain, BNL is currently developing plans for alternately-financed housing to replace some of the 60-year old housing. New facilities would be located on developed land in the proximity of the existing housing area.

Section 5

Facilities and Infrastructure

FACILITIES AND INFRASTRUCTURE

5.1 STRATEGIC FACILITIES & INFRASTRUCTURE GOALS

5.1.1 Overview

The infrastructure at BNL is considered to be a platform for the Laboratory's science and technology mission. Accordingly, the goals and objectives for infrastructure are derived directly from the Laboratory's strategic science planning. While the current physical plant has facilitated BNL's mission for many years, inadequacies in the condition, capability, and location of facilities have hampered the mission. This has affected the Laboratory's ability to attract and retain top scientists, unnecessarily increased operating costs, restrained the efficiency of our employees and users, and limited our ability to undertake certain aspects of the mission.

5.1.2 Infrastructure Objectives

BNL's first and foremost infrastructure objective is to ensure the DOE's goal of enabling great science by facilitating new frontier research opportunities, which will support the Laboratory into the future. To achieve this goal, we will:

- Establish quality workplaces for users and employees
- Consolidate science-theme areas
- Encourage interdisciplinary interactions
- Create a coherent user experience
- Incorporate Information Technology
- Establish openness and community orientation
- Support safe, environmentally sound, and cost-effective operations

5.1.2.1 Establish Quality Workplaces for Users and Employees

This goal is both one of quantity and quality. Scientists including Users and employees are primary customers and must be supported by providing an adequate number of high-quality workplaces, equipped with the proper information-technology tools, and appropriately located adjacent to their colleagues and/or their experiments. Planned improvements must increase the productivity of our users while they are at BNL, thus leveraging the scientific output from the DOE's investment in our major user facilities.

The specific objectives include the following:

- Providing new facilities to consolidate BNL's users and scientific staff into modern space, including offices, conference rooms, and administrative support and seminar space
- Upgrading existing permanent lab/office space
- Improving the network infrastructure servicing users' workspaces
- Bringing the Laboratory into compliance with the Americans with Disabilities Act (ADA)

5.1.2.2 Consolidate Science Theme Areas / Encourage Interdisciplinary Interactions

BNL's scientific leadership themes (summarized in Section 3) are far more interdisciplinary than in the past. Consequently, BNL's infrastructure of permanent lab/office buildings currently dedicated to one discipline (e.g., Physics, Chemistry, Medical, Biology, etc.) will need to be reconfigured and supplemented by new, flexible laboratory buildings that can accommodate multidisciplinary teams.

The following specific objectives relate to this goal:

- Renovating facilities with building envelopes that will last beyond the planning period, but whose electrical- and mechanical-systems have reached the end of their economic life. Built into these renovations will be particular modifications to increase the flexibility and adaptability of the space to meet the needs of future missions.
- Developing new general-purpose laboratory/office facilities, as required, to meet mission needs and allow the reorganization or consolidation of staff into more efficient workgroups, and promote the interaction of interdisciplinary scientific teams.
- Locating new scientific facilities and creating pedestrian access across the central area of the site in a way that promotes increased interaction among scientific staff.
- Upgrading information technology on site to increase the ability of staff to interact and readily transmit information.
- Providing library facilities that can accommodate the state-of-the-art needs of scientific staff and users.

5.1.2.3 Ensure a Coherent User Experience

The success of many of BNL’s user facilities depends on the contributions of the approximately 4,000 visiting scientists who use them each year. It is important that the site’s infrastructure have the facilities, networking infrastructure, transportation routes, housing, and recreational facilities to make the users’ visit to BNL both professionally productive and personally satisfying. The following specific objectives are designed to achieve this goal:

- Providing facilities to streamline the users’ orientation and training.
- Facilitating their transportation and site orientation by providing vehicular- and pedestrian-pathways arranged to facilitate moving around the site.
- Grouping the Laboratory’s support organizations and “community services” (e.g., Credit Union, Human Resources, Staff Services) into a “one-stop shopping” experience where users can access these services in one place, or in close proximity.
- Providing workspaces that are modern, efficient, safe, and comfortable to use, and housing that is specifically designed and located to support the duration of the user’s stay at BNL.
- Making adequate conference and videoconference facilities available for scientific meetings and discussions.
- Supporting the educational and recreational needs of users and their families.

5.1.2.4 Incorporate Information Technology

As noted above, offering the latest information technology capabilities is a key factor in meeting several of our infrastructure goals. The following objectives are specific to this goal:

- Continue to keep pace with advances in information technology through developing and maintaining a site-wide fiber optic "utility" system.
- Provide and upgrade facilities, as needed, to make available appropriate space for computing and communications assets, and to decrease the vulnerabilities of the site's networking infrastructure.

5.1.2.5 Establish Openness and Community Orientation

The Laboratory cannot succeed over the long term without the support of the community. Various programs in community involvement, and government and public affairs are key to this goal. Specific objectives to ensure infrastructure adequately supports this goal are the following:

- Developing facilities to receive, orient, and document visitors to the site.
- Providing facilities that support community outreach, such as science education.
- Providing facilities that offer cultural resources to the community as well as to employees and users.

5.1.2.6 Ensure Safe, Environmentally Sound, and Cost-Effective Operations

Many Laboratory systems and processes were developed and implemented to support this goal. However, the condition and configuration of the Laboratory's physical plant also play a key role in achieving this goal. The following are our specific objectives:

- Eliminating ES&H deficiencies as part of permanent building renovations and through demolition of older structures.
- Consolidating support organizations to improve efficiency and reduce operating costs.
- Improving services to on-site "customers" and reducing costs by consolidating maintenance and fabrication shops.
- Providing state-of-the-art capabilities for handling materials.

5.2 CONDITION ASSESSMENT OVERVIEW

5.2.1 Overview

BNL has a Condition Assessment Program (CAS) wherein all real property assets that can be accessed are inspected over a 5-year cycle. For major facilities, BNL uses the engineering firm ISES. For smaller facilities, in-house personnel carry out the inspections. Utility inspections generally are performed as part of preventive maintenance, and by surveillances performed by craft and supervisory personal associated with the utility. All deficiencies are either corrected immediately through the work-order management system or placed in the backlog database. Other deficiencies are identified by scientific and support staff based on assessment of the functionality of the facility to the mission. A facility, with

potentially 40-year-old finishes and electrical- and mechanical-systems subject to constant repair may be judged unsuitable to conduct research and attract new talent. Such deficiencies are recorded in the BNL project request system (ADS database) and prioritized under the Project Planning Programming and Budgeting Process (3PBP). On a larger scale, BNL's major lab/office buildings, most of which were constructed before 1965, were inspected as part of BNL's Site Master Plan process. Significant areas with original finishes, and original architectural-, mechanical-, and electrical-equipment were identified as beyond their useful life. These deficiencies were assembled into major building rehabilitation projects to submit for future line-item funding. Individual areas with the highest priority are rehabilitated with operating or GPP funds, as appropriate; however, this process is slow due to limited funds. When considering deferred maintenance all systems are included, and any overlap is noted and filtered out.

5.2.2 Summary Condition of Assets

Chart 5-1 shows the Facility Condition Index (FCI) for BNL's buildings and Table 5-1 summarizes deferred maintenance (DM), and rehabilitation and Improvement Costs (RIC). The FCI for the active and operational excess space is 16.4%, which is at the lower end of the "Fair" category. This is due to the large number of WWII era buildings and laboratories and offices built in the 1950s and 1960s that have significant amounts of original mechanical- and electrical- systems needing major rehabilitation (direct replacement). A very small amount of space, approximately 1,400 sf, (<0.1%) is classified as "Fail (FCI >60%)". This space consists of 2 small buildings ranging from 1,281 to 126 sf. The larger space is an enclosure for two generators that serve the Biology and Medical complexes. While the block building is adequate, the installed generators are more than 30 years old and need replacing (ADS AA4D0079). The other building is a marginally functional WWII era small shack covering a sanitary sewer lift station. Recent and planned demolition of excess WWII era warehouses in this area will eventually negate the need for this building. There is approximately 1M sf of space in "Poor" condition (FCI >25%). The vast majority is in the large lab / office buildings (Buildings 463, 490, 510, 535, 555, 815, and 911) constructed in the 1950s and 1960s which have significant amounts of original architectural-, mechanical-, and electrical-systems representing the major portion of the Laboratory's deferred maintenance. The IFI Crosscut (Section 6) shows some of these projects; others are in out-years due to the DOE's SLI budget limitations. Some of the highest priorities are being addressed and this will continue through GPP and operating funds. These projects are shown in the IFI Crosscut (Section 8) which includes ADSs for roof replacement, mechanical- and electrical- system replacement, and general laboratory rehabilitation projects.

BNL has central utilities systems for electric distribution (13.8kV and 2.4kV), steam, chilled water, compressed air, sanitary, potable water, telecommunications, and networking. In addition, there is a central site fire alarm system and a site security system to monitor selected areas, and an Energy Management System to centrally manage building systems. These systems use a combination of telecommunication and networking distribution system resources. Science Laboratory Infrastructure (SLI) Line Item funds (formally the MEL/FS program) over the past 15 years have helped to maintain and improve electrical-, potable water-, and sanitary-distribution systems. However, additional needs are foreseen in the near future. Although the central chiller water and compressed air systems are relatively new, few improvements, except in manholes, have been made to the central steam system distribution system piping, portions of which go back to the WWII era.

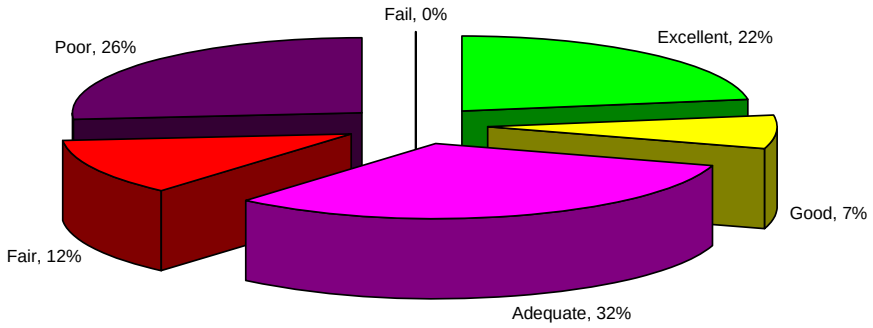


CHART 5-1 Building FCI – Active and Operational Excess Buildings

TABLE 5-1 Deferred Maintenance and Rehabilitation and Improvements Costs

	DOE-SC	DOE-EM
Total Summary Condition (DM + RIC) *: $M	370,395,525	921,154
Deferred Maintenance (DM)	222,848,387	858,751
Buildings	174,158,724	858,751
OSF	48,689,663	0
Rehab and Improvement Cost (RIC)	147,547,138	62,403
Buildings	142,963,138	62,403
OSF	4,584,000	0
*Doesn't include personal property trailers		
Total Summary Condition Index (TSCI): (percent of Total RPV) * (Excludes Excess Facilities)	29.8%	1.45%
Facility Condition Index (FCI) (based on DM)	16.4%	1.36%
Rehab & Improvement Cost Index (based on RIC)	13.4%	0.09%

5.2.3 Building Infrastructure Needs

The major portion of the deferred maintenance lies in the following two areas:

- Major rehabilitation of 9 main lab/office buildings constructed between 1949 and 1966. They are 463 (Biology), 490 (Medical), 510 (Physics), 515 (Scientific Computing), 535 (Instrumentation/NSLS), 555 (Chemistry), 703 (Multi-science), 815 (Environmental Science), and 911 (Collider-Accelerator). Restoration consists of rehabilitating interior finishes, architectural systems (roofing, flooring, ceilings, and standard lab furnishings), mechanical systems (HVAC and associated ductwork), and electrical systems (panel boards and lighting). The estimate for this work is $137 million that represents approximately 75% of the total deferred maintenance backlog for active buildings.

- Roofing (replacement of roofs that are beyond their economic life of 25–30 years).

5.2.4 Utility Infrastructure Needs

While much improvement was made through Line Items over the past 15 years to the electrical-, sanitary- and potable-water systems, the distribution systems of the steam and potable-water systems still need work. Sections of these systems were used by the U.S. Army during World War II. Major sections of the distribution system's piping must be replaced. Appendix J lists general information about the various utility systems and Appendix K provides detailed descriptions of utility systems including associated issues and proposed projects to resolve them. The major element of deferred maintenance for utilities is directly replacing the several underground distribution systems, valued at $34M.

5.3 FACILITIES MANAGEMENT, SPACE MANAGEMENT & UTILIZATION

5.3.1 Facilities Management Responsibilities

The Facilities and Operations (F&O) Directorate is responsible for managing all real property buildings and conventional Other Structures and Facilities (OSF) such as utility systems. Other directorates are responsible for OSFs dedicated to program use. Their responsibilities are set forth in the Real Property Asset Management (RPAM) Program Description, part of BNL's Standards Based Management System (SBMS).

5.3.2 Facilities and Infrastructure Funding Decisions

Facilities and infrastructure funding decisions are integrated into BNL's overall system for evaluating the laboratory needs and allocating discretionary funds including GPP and operating funds allocated to large operating funded projects. A description of this process, entitled, Project Planning, Programming and Budgeting Process (3PBP), from SBMS can be found in Appendix L. The process includes evaluation of the projects for technical risk/benefits and review by senior management for consistency with the Laboratory's strategic goals. Final approval comes from the BNL Policy Council which includes the Laboratory Director.

Smaller maintenance projects are funded from the Plant Engineering budget. Initial prioritization is done by the management of the Operations and Maintenance Division based on discussions with Superintendents and General Supervisors who communicate with first line supervisors who receive feedback from workers and building managers as maintenance is performed. This initial prioritization is then reviewed and approved by the Manager of Plant Engineering and the ALD for Facilities and Operations.

5.3.3 Space Management

BNL developed a space charge program in 1997 and began charging for space in 1998. Space charge covers the costs of building general maintenance and some major system repairs. From 1998 to 2006 space charge as shown in Table 5-2 has increased 90% (~12% / yr) when the fuel surcharge, currently 16.6% is added back into the FY05 rate. Due to the dramatic fluctuations in cost, fuel was removed in FY04 so as not to influence the Plant Engineering budget.

Table 5-2 Space Charges 1997 - 2006

TYPE	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	2.60	3.05	3.45	3.30	3.85	4.05	4.15	3.70	4.30	5.07
2	6.90	8.20	9.25	8.80	10.15	10.70	10.90	9.80	11.39	13.44
3	10.20	12.05	13.60	12.90	14.90	15.70	16.00	14.45	16.79	19.81

Notes:
1997 Memo billing only
2004 The cost of fuel was taken out of the Space rate starting in FY 2004 and is charged as a separate rate
2005 DOE's MII initiative is included in Space rate
2006 Preliminary estimate of rates

5.3.4 Asset Utilization

BNL's assets are essentially fully utilized. DOE-SC assets have an Asset Utilization Index of 0.99 "Excellent", due mainly to the efforts of the SLI Excess Facilities Program. This program has enabled over 150,000 sf of excess space to be demolished. DOE-EM owns a number of assets. These can be categorized as operating treatment plants and excess reactor facilities (BGRR and HFBR). There is no final approved plan for these projects. However, the recommended action for the BGRR is removal of the pile which may leave most portions of the building usable. HFBR planning is still underway, with no approved recommended action. Therefore, the asset utilization of the DOE-EM assets which is dominated by the reactor space is 0.03 "Poor".

5.4 FACILITIES SUPPORTING MISSION ACTIVITIES

Details are contained in Section 7, Directorate Plans and Appendices A, B and C.

5.5 SITE UTILITY SYSTEMS

The initial site utility systems were installed by the U.S. Army as part of Camp Upton. Since 1947 when the facility was converted to BNL, the Laboratory has made extensive additions and modernized the systems to meet the needs of the expanding and changing research programs. The site utility systems, which are owned and operated entirely by the Laboratory, consist of steam, chilled water, compressed air, water, sanitary, and storm water. Electric power is supplied by the Long Island Power authority (LIPA) and the New York Power Authority (NYPA) at 69 kilovolt (kV) and transformed and distributed throughout the Laboratory on a distribution system owned by BNL.

A summary sheet of BNL's utility system assets can be found in Appendix J. Detailed descriptions of BNL's utility system assets can be found in Appendix K.

5.6 LEASING

BNL does not lease buildings or other structures and facilities. The DOE Chicago Operations Office handles all access agreements between the DOE and the grantors.

5.7 OTHER FACILITIES

BNL does not use any assets owned by other federal agencies. However, on the BNL site there are weather station facilities not related to the BNL mission operated by the Department of Commerce and cell towers operated by Crown Atlantic both of which are operated under contract with DOE with no BSA involvement.

5.8 ASSET DISPOSITION

Table 5-3 shows real property buildings, and Table 5-4 shows real property OSF assets no longer required or that will be no longer required once the specific project is funded.

TABLE 5-3 Buildings Disposition

ID	NAME	CONTAM	ACTIVE	EXCESS YEAR	STATUS CHANGE NOTES
EM					
0701	BGRR Project Offices	Y	N	1997	BGRR Project
0704	Fan House	Y	N	2000	HFBR Project
0707A	Pump House	Y	N	2000	HFBR Project
0707B	Water Treatment House	Y	N	2000	HFBR Project
0708	Instrument House/Ducts(DEC)	Y	N	1997	BGRR Project
0709	Canal House (DEC)	Y	N	1997	BGRR Project
0715	Stack Monitoring Station	Y	N	2000	HFBR Project
0750	High Flux Beam Reactor	Y	N	2000	HFBR Project
0751	Cold Neutron Facility	Y	N	2000	HFBR Project
SC					
0086	Stationery Warehouse	N	N	2005	SLI Excess Facilities FY06
0193	Teachers Federal Credit Union	N	N	2005	CFN Project Demo
0208	Programs Storage/X-Radiograph	N	N	2004	SLI Excess Facilities FY04
0491	Medical Research Reactor	Y	N	2002	Plan underdevelopment
0492	Well No. 105	N	N	2002	SLI Excess Facilities FY05
0527	Excess Office Space	N	N	2004	SLI Excess Facilities FY05
0650	Custodial Storage	Y	N	2000	SLI Excess Facilities FY06-08
0650A	Storage	N	N	1997	SLI Excess Facilities FY05
0811	Waste Concentration Facility	Y	N	2004	SLI Excess Facilities Outyear
0933B	RHIC Installation Welding	N	N	2004	SLI Excess Facilities FY05
0934	RHIC Installation Storage	N	N	2004	SLI Excess Facilities FY05

ID	NAME	CONTAM	ACTIVE	EXCESS YEAR	STATUS CHANGE NOTES
0302	Apartment 28	N	Y	2008	Alt. Financed Housing Demo
0303	Apartment 34	N	Y	2008	Alt. Financed Housing Demo
0306	Apartment 13	N	Y	2008	Alt. Financed Housing Demo
0317	Recreation Hall	N	Y	2008	Alt. Financed Housing Demo
0325	Apartment 7	N	Y	2008	Alt. Financed Housing Demo
0327	Apartment 24	N	Y	2008	Alt. Financed Housing Demo
0328	Apartment 26	N	Y	2008	Alt. Financed Housing Demo
0330	Apartment 8	N	Y	2008	Alt. Financed Housing Demo
0331	Apartment 10	N	Y	2008	Alt. Financed Housing Demo
0334	Apartment 30	N	Y	2008	Alt. Financed Housing Demo
0335	Apartment 36	N	Y	2008	Alt. Financed Housing Demo
0459	Business Systems Division	N	Y	2009	Research Support Bldg Ph I Demo
0120	ESH & Q Office Building	N	Y	2015	Research Support. Bldg Ph II Demo
0129	Science Museum Staff & NSLS Office Bldg.	N	Y	2015	Research Support. Bldg Ph II Demo
0355	Contracts & Procurements	N	Y	2015	Research Support. Bldg Ph II Demo
0460	Director's Office	N	Y	2015	Research Support. Bldg Ph II Demo

TABLE 5-4 OSF Disposition

ID	NAME	CONTAM	ACTIVE	EXCESS YEAR	STATUS CHANGE NOTES
EM OSF ASSETS					
1090-HFBR	HFBR	Y	N	2000	HFBR Project
2120	Gas Cylinders Disp	N	N	1997	HWMF Project
2150	Pit Liners Waste Dis	Y	N	1997	HWMF Project
2160	Pits Waste Dis 1	Y	N	1997	HWMF Project
2180	Masonry Pits	Y	N	1997	HWMF Project
2190	Pit Waste Dis 2	Y	N	1997	HWMF Project
2405-STACKDRAIN	Liquid Waste Piping System (ST0705)	Y	Y	2010	HFBR Project
409030163	Pits Waste Storage-2170	Y	N	1997	HWMF Project
409030166	Storage Tank 3-Rad Slurry-2140	Y	N	1997	HWMF Project
6250750	High Flux Beam Reactor (Tank)	N	N	2000	HFBR Project
ST0623	Nitrogen Tank (B/750)	N	N	2000	HFBR Project
ST0702	BGRR (B/701)	Y	N	2001	BGRR Project
ST0705	Reactor Stack	Y	Y	2010	HFBR Project
ST0707	HFBR Cooling Tower (Basin)	N	N	2000	HFBR Project
SC OSF ASSETS					
1070-BMRR	Medical Reactor	Y	N	2002	BMRR Project

2030	Metal Incinerator	Y	N	1997	
7135030243	Other Wells	N	N	2001	

5.9 LONG TERM STEWARDSHIP / EM FACILITIES

Long Term Stewardship is covered in Section 8. A list of EM assets can be found in Appendixes A, B and C.

5.10 NON-SC FACILITIES

All assets used by BNL to accomplish its mission are either DOE-SC owned or DOE-EM owned. Other facilities used located on the BNL site, which are not used by BNL are described in Section 5.7.

5.11 VALUE ENGINEERING

Value Engineering (VE) is a process that identifies alternatives that provide the best value while meeting mission, functional, and performance objectives. BNL applies VE in a graded approach to maximize the return on investment. The VE process identifies the cost of different alternatives, including factors such as their initial cost, maintenance costs, energy and operational costs and the life cycle cost (LCC). For projects greater than $1 M, a formal VE process is used. Either an in-house team consisting of trained VE professionals or a specifically hired outside VE team performs the VE analysis. For projects less than $1M, an in-house committee reviews the project applying VE techniques to identify cost-effective alternatives. The project manager then incorporates those recommendations that meet the performance requirements and offer the lowest LCC.

5.12 FIVE-YEAR SUSTAINMENT REQUIREMENTS

BNL has a computerized maintenance management system (CMMS) that tracks corrective maintenance history by asset it supports. The system supports the Preventive Maintenance Program. Maintenance needs for conventional assets are the responsibility of the Plant Engineering Division. BNL is currently completing the transition from MP2 to Maximo for its CMMS. An analysis of cyclic needs and trending of corrective maintenance was documented in “Maintenance & Capital Renewal Analysis” whose latest update is August 2004. This study considered both short-term cyclic requirements, such as preventive maintenance, and long-term needs such as roof replacement on a 30-year cycle. The conclusion was that BNL was accomplishing 65% of general maintenance requirements, and 31% of capital renewal needs. Proposed increases in FY05 and FY06 to bring the MII from 1.4% to 2.0% will have a direct impact in addressing capital renewal needs. This should have the indirect effect of reducing breakdown maintenance that will release more funds for the general maintenance requirements. All major systems are included in the report. In an ideal world, the budget would match the needs. Budget limitations are a reality, consequently, optimum maintenance cycles are adjusted to match budgets based on the judgment of the maintenance staff including management and supervisors. Such adjustments are made as feedback from the field, generally in the form of breakdown maintenance, reveals the need to do so.

Table 5-5 shows the current and proposed allocation for renewal projects and the maintenance funding levels for preventive and corrective maintenance work orders.

TABLE 5-5 Five-Year Recapitalization Plan

Fiscal Year	2006	2007	2008	2009	2010
Plant Engineering Maintenance Budget Funded Projects					
Maintenance Categories ($k)					
Chiller Replacement		125	125	125	125
Duct Cleaning	25	25	25	25	25
Electrical Equipment Replacement	40	40	40	175	175
Elevated Structures		25	25	25	25
Elevator Replacement/ Modernization		50	50	50	50
Exterior Building Maintenance		250	250	250	250
Fire Alarm Systems		40	170	170	170
Heavy Equipment Repairs		44	44	44	44
Interior Building Maintenance	75	300	300	300	300
Mechanical Equipment Replacement		250	250	250	250
Operations Support	80	100	100	100	100
Overhead Doors		45	45	45	45
Paving		250	250	250	250
Roofing Repair	200	400	400	400	400
Sidewalk Replacement		100	100	100	100
Window/Door Replacement	175	150	150	150	279
SUBTOTAL	595	2,194	2,324	2,459	2,588
Regular Maintenance (PM & CM)	16,067	16,067	16,067	16,067	16,067
Charge-Back Maintenance **(Direct and Indirect)**	4,915	4,915	4,915	4,915	4,915
OFP Maintenance Projects (G&A, MII) See Section 7 SC-IFI for Details	4,218	5,518	5,986	6,334	6,689
SC DM Reduction Program See Section 7 SC-IFI for details	1,020	6,630	11,900	17,850	23,460
TOTAL	26,815	35,324	41,192	47,625	53,719

5.13 DEFERRED MAINTENANCE (DM) REDUCTION

5.13.1 Deferred Maintenance Tracking

BNL's estimate for deferred maintenance is made based on four sources which are as follows:

- **Routine Maintenance** – These are work orders opened and scheduled in a given FY but deferred to subsequent years due to lack of resources.
- **ISES Database** – BNL employs an engineering firm, ISES, to inspect facilities. Deficiencies are either dispatched immediately to the work-order system for resolution, or deferred and recorded in the database. Other internally found deficiencies to be deferred are entered into the same database. These projects generally involve partial repairs (e.g., patch a portion of a roof) and usually are funded from Plant Engineering's maintenance budget. They are prioritized with input from maintenance supervisors and the Site Master Planner. Final approval lies with the Manager of Plant Engineering and the ALD for Facilities and Operations.
- **ADS Database** – Maintenance projects requiring total replacement or major rehabilitation generally are recorded in the ADS database. (e.g., replace an entire roof). These projects are prioritized against other Laboratory needs, such as Environmental Safety, and Health (ES&H) projects. Risk prioritization is accomplished in accordance with the BNL's 3PBP. Infrastructure projects are scored using the DOE's Capital Asset Management Process (CAMP) Scoring Matrix as modified by BNL. Scores are converted then into an equivalent Risk Prioritization Model (RPM) score.
- **Programmatic Maintenance** – Generally, maintenance is carried out by programmatic departments on programmatic real property such as our large accelerators and associated equipment. These include the National Synchrotron Light Source (NSLS) and the Relativistic Heavy Ion Collider (RHIC). Backlogs are determined and tracked by the programmatic departments.

5.13.2 Deferred Maintenance Projects

A listing of the larger scale deferred maintenance projects from BNL's ADS database for which BNL would fund with SC DM Reduction funds are listed in Appendix M. These projects were prioritized using the 3PBP Process (see Appendix K). The basis for the prioritization scores are CAMP Prioritization Model Scores, which are then converted into a score consistent with those used by the Risk Prioritization Model (RPM) for scoring ES&H projects. This allowed the projects to compete equally for available funding based on their relative risk/benefits. The conversion model was developed by the Risk Evaluation Group of BNL's Energy Sciences Group in the mid-1990's by comparing the description of the risks and probability of occurrences for both models.

The most critical issues for which BNL would apply direct deferred maintenance reduction funds are listed under the Multi-program Science Lab Renovation Projects. Building included in this effort are all the major science lab/office buildings; B/463, 490, 510, 515, 535, 555, 703, 815, 830, 902, and 911. Selected pieces of this project will be broken out to accomplish the work that mostly closely supports the mission needs priorities and initiatives described in Section 3. Some selected pieces have already been broken out as part of

BNL's normal project needs development, they are items such as; lab rehabilitation projects, air handler replacements, roof replacements, and elevator replacements. There are also ES&H related deferred maintenance items such as replacement of obsolete fire alarm panels and radiation monitors and retrofit of obsolete 480 Volt power circuit breakers.

BNL's increase of operating funds to 2% of RPV for maintenance should stabilize BNL's deferred maintenance at its current level and meet inflation. However, little to no deferred maintenance reduction should occur solely from operating funds which under the near-term budget projections will be highly constrained. However, capital projects can also reduce deferred maintenance. As an example, the current Research Support Building Phase I project will provide new space, both eliminating the deferred maintenance associated with space which will be consolidated out of and placed in cold storage as well as through the expected lower maintenance costs associated with the a new facility during its initial years of operation. BNL has also proposed line-item laboratory renovation projects which consist entirely of deferred maintenance reduction. As with Line-Item projects, GPP projects, while generally focused on upgrades, can also result in deferred maintenance reduction. As an example while upgrading the capability of a laboratory various mechanical and electrical systems needing replacement may also be replaced, thereby reducing the deferred maintenance.

Therefore, deferred maintenance reductions over current projection (see Table 5-6) will only be achieved though one or more of the following:

- Substantial increases in the Laboratory operating budget allowing more G&A to be directed towards maintenance, however this funding has not met inflation for most of the recent years
- Increases in GPP, however, increases in this program have not met inflation for most of the recent years
- Increases in SLI program, however, this program has been declining over recent years
- Use of alternate financing. BNL is currently working on a Housing Project and may pursue other projects depending on how the housing project proceeds.

TABLE 5-6 Deferred Maintenance and FCI Trends

	Considers Active Buildings Only				
		w/o SC DM Reduction		w/ SC DM Reduction	
FY	RPV ($M)*	DM ($M)**	FCI %	DM ($M)	FCI %
2005	1,034	171	16.5%	171	16.5%
2006	1,034	186	18.0%	185	17.9%
2007	1,134	192	16.9%	184	16.2%
2008	1,171	198	16.9%	179	15.3%
2009	1,198	202	16.9%	165	13.8%
2010	1,225	207	16.9%	147	12.0%
2011	1,253	212	16.9%	150	12.0%

* Assumes the following construction project escalation: FY06 = 0% (DOE decision to use FY05 base RPV's), FY07 = 9.7% (expected change in MEANS for 2 years), FY08 = 3.1%, FY09 and beyond = 2.3%

** Assumes 2.0% MII keeps DM flat except for inflation. Construction Inflation projections: FY06 = 8.7% (Based on MEANS), FY07 = 3.1%, FY08 = 3.1%, FY09 and beyond = 2.3%

5.14 RECAPITALIZATION

Recapitalization projects are shown in Section 6, Resource Needs on the Facilities and Infrastructure Cross-Cut. Typical projects include modernization and expansion of computer facilities, modernization and increased capabilities to laboratory's, and Environmental safety and health improvements to meet current regulations.

5.15 FIMS ISSUES

There are no substantive FIMS related issues. Field data population is routinely checked using DOE provided population queries. A Quality Assurance Plan is produced annually and validation results are provided to DOE's Brookhaven Site Office.

In June of 2004 BNL was part of the FIMS Validation Project conducted by ME-90 and a support contractor, LMI Government Consulting. Using statistical sampling techniques, selected FIMS data was validated. There were no significant findings and during the associated exit interview ME-90 indicated they were impressed with BNL's methods.

5.16 RPV CALCULATION

In FY04 BNL recalculated all its Replacement Plant Values (RPVs). The preferred methodology for buildings was to select the appropriate MEANS Square Foot Model. BNL used both the MEANS models developed specifically for DOE and the commercially available models from the MEANS Square Foot Estimate Guide. To supplement these models approximately 1,800 Standard Adjusters were used to refine the estimate to resemble as close as possible the actual facilities. For buildings where a standard model could not be found the Current Plant Value (CPV) Method was used with building construction escalation factors obtained from Engineering News Record, which has tracked construction costs since before BNL was constructed. OSF assets were recalculated using the CPV method using general construction escalation factors obtained from Engineering News Record.

During FY05 and FY06, BNL will be investigating conversion of its RPV database into the MEANS Costworks Model. This is expected to be a substantial effort; however, further RPV updates would be facilitated in the future.

As part of the 2004 FIMS Validation Project, RPV's including BNL's methodology were reviewed and accepted.

5.17 MISSION CRITICAL FACILITIES

5.17.1 Overview

The purpose for classifying facilities relating to the criticality of the mission is to ensure limited project funds are prioritized and applied to projects factoring in the criticality of the facility to accomplishing the mission. BNL accomplishes this through its use of the Capital Asset Management Process (CAMP) Scoring Model (GPG-FM-030). This model takes into account Health and Safety, Environmental, Safeguards and Security and Mission and Investment Factors. BNL has integrated this model into its project prioritization system, known as 3PBP (see Appendix L for system description).

5.17.2 Mission Critical facilities (MC)

Assets whose loss or disruption would pose immediate, serious, or irreversible setbacks to the performance of required missions are categorized as critical. Projects relating to these assets would generally score higher than 50 using CAMP if deemed to have a high probability of occurrence.

5.17.3 Mission Dependent, Not Critical (MD)

Assets whose loss or disruption would have a less severe effect are generally categorized as mission dependent, not critical. Projects relating to these assets would generally score between 40 and 50 under the Mission category using CAMP if deemed to have a high probability of occurrence. Projects may score higher if they could have immediate severe impact on Safety and Health or the Environment.

5.17.4 Not Mission Dependent (NM)

Assets being phased out or subject to planning for phase-out are viewed as having negligible effect on meeting functional missions and are categorized as not mission dependent. Projects relating to these assets would generally score less than 40 under the Mission category using CAMP if deemed to have a high probability of occurrence. Projects may score higher if they could have immediate severe impact on Safety and Health or the Environment.

Section 6

Resource Needs

RESOURCE NEEDS

6.1 PLANNING ASSUMPTIONS

The following planning assumptions were used in the development of the IFI crosscut.

6.1.1 Line Items- General Infrastructure

The basis for the general infrastructure line item projects was the DOE Strategic Laboratory Infrastructure (SLI) Program. BNL used the 5 Year Construction Guidance provided by DOE-SC-82 in the TYSP Guidance Document for fiscal years FY05 to FY11. For years FY 13- FY15 BNL added its next priority projects assuming one new start per year.

6.1.2 Line Items- Programmatic

Programmatic guidance was provided for the Center for Functional Nanomaterials (continuing project) and the Electron Beam Ion source a FY06 new start.

6.1.3 General Plant Projects

As no specific programmatic guidance was provided, BNL assumed only 3% annual inflation.

6.1.4 Infrastructure Maintenance Budget/ Projects

Guidance provided by the BNL Budget Office was for this funding to increase achieving 1.7% MII in FY05, 2.0% in FY06 and 2% inflation only for FY07 and beyond.

6.1.5 EM Budgets

The basis for these projections was the approved EM Life-cycle Baseline.

6.2 TEN-YEAR SITE PLAN PROJECTS

6.2.1 Alternately-Financed Projects

User Housing Phase I $13,000,000

This project will construct 84,500 square feet of new housing in several phases, with additional housing to meet demand constructed first, and replacement facilities constructed last. This type of housing will be geared to the 4,000 visiting scientists per year who come to BNL for extended stays. Many of these users bring their families and require multi-bedroom housing. Transportation isn't a major issue for this category of user. Considering these two factors the location of the housing could be more remote from the central site to allow a community-type atmosphere to accommodate family life and comfort. This type of housing will likely be self-contained, with only shared community type facilities for entertainment, and social gatherings. This project is scheduled to start in FY06. As there is no demolition as part of this project there will be not deferred maintenance backlog reduction.

Energy Science Building $17,500,000
The Energy Sciences Building Project is a key element in BNL's plan to upgrade and modernize facilities essential to the DOE mission in applied sciences. This project will construct 57,000 square feet of sorely needed laboratory and office facilities to replace old, outdated, inefficient World War II era facilities that are incapable of meeting mission needs. Execution of this project is essential to multi-program DOE initiatives in environmental sciences, carbon management, nanotechnology, energy sciences, and for promoting industrial collaboration and technology transfer. Existing buildings for applied sciences are dispersed over a wide area of the BNL site, which means that scientists are isolated from their peers. This discourages collaboration, and negatively impacts productivity and creativity. In addition, the existing wood frame structures are costly to operate and maintain. Wood rot, leaking roofs, sagging floors, structural members not up to current code design, asbestos and lead hazards, old HVAC and electrical systems, old windows, old lighting and poor insulation will all require large continued investment to maintain just a minimum functional capability. Even with this investment, the facilities will not be optimal to meet mission objectives. Energy costs of $1.50/SF are more than double the amount for a similar size modern office building. There is no specific project start date as BNL awaits the results of the User Housing Project before proceeding. Since there is no demolition as part of this project, there will be not deferred maintenance backlog reduction.

6.2.2 Funded Programmatic Buildings

Nanoscale Science Research Center $81,000,000
BNL's commitment to nanoscience research and nanofabrication is expanding. Existing nanoscience laboratories are undersized and environmentally deficient. This proposed new 94,500 square foot energy-efficient, functional, and state-of-the-art facility will accommodate approximately 150 persons, including roughly 75 staff, as well as users and postdoctoral fellows. An initial complement of technical equipment is also included in the project. This project began in FY04 and is expected to be completed in FY07. As there is no demolition as part of this project there will be no deferred maintenance backlog reduction.

6.2.3 Funded SLI Projects

Research Support Building Phase 1 $18,200,000
This project will construct a new two-story 65,000 gross square feet office building. BNL's Master Plan suggests that a three-phase approach, constructing three buildings in close proximity, will be a cost-effective and efficient solution to relocating our support staff out of aging WW II facilities. The new Research Support Building will provide an enhanced image of BNL as a center for world-class science. Organizations to be located in the new facility include the Human Resources Division, Diversity Office, Business Systems Division, Teachers Federal Credit Union, Security Badging, Photography and Graphic Arts, Media and Communications Office, Community Relations Office, User Reception, and Staff Services Division. This project began in FY03 and will be completed in FY07. Building 459A was demolished. In addition, a portion of building 179 is planed for demolition in FY07 with a corresponding DM reduction of $100,000.

6.2.3 Proposed SLI Projects

User Research Building $18,350,000
Currently, BNL has approximately 4,000 users with 300 on site on any given day. It is essential for the success of our world-class nuclear physics program, that BNL provide adequate space in terms of condition, capability and location. The project will provide approximately 55,000 square feet of permanent space for BNL's scientific staff working on RHIC and other users. This project will construct a new three-story office building, next to the Physics Building, providing office, seminar, conference, and administrative support space. The User Research Center complex will be located on Brookhaven Avenue in the science core of the BNL site.

Chilled Water Ph II $10,000,000
This project will increase the plant capacity to support the addition of new buildings to the chilled water system. While individual chillers could be added incrementally, it is far more efficient to do this as a single project. Other plant systems such as cooling towers need to be constructed which will accommodate several chillers. This project is proposed for a FY13 start. As there is no demolition as part of this project there will be no deferred maintenance backlog reduction.

Research Support Building Phase II $20,000,000
This project will construct an additional 65,000 square feet each of modern office buildings. Accommodated by this space will be most of the remaining support divisions except for Plant Engineering, Central Fabrication, and Safeguards and Security for which other projects are proposed in the out-years. This project proposed to start in FY16 will demolish buildings 120, 129, 355, 459, and 460. The corresponding DM reduction will be approximately $1.6M (in FY05$).

Renovate Science Labs I & II $16,000,000 Phase I & 18,000,000 Phase II
These projects (all phases) will renovate close to 800,000 square feet of the Laboratory's permanent laboratory/office buildings, many of which were constructed in the 1960s. These renovations include interior finishes, electrical and mechanical systems, and basic laboratory furnishings. Some interior partition changes will also be performed aimed at making these facilities more flexible and adaptable to changing program needs. An emphasis will be placed on making the building more environmentally benign ("green") and energy efficient. These projects proposed for start in FY10 and FY14 will provide DM reduction roughly equivalent to the TEC of the projects.

Integrated Facilities and Infrastructure Budget Data Sheet (IFI)	Project Number	Gross Building Area	FY 05 Approp. ($000)	FY 06 Approp ($000)	FY 07 Budget ($000)	FY08 Budget ($000)	FY 09 Budget ($000)	FY 10 Budget ($000)	FY 11 Budget ($000)	FY12 Budget ($000)	FY 13 Budget ($000)	FY 14 Budget ($000)	FY 15 Budget ($000)	FY 16 Budget ($000)
SITE NAME: Brookhaven National Lab														
PROGRAM: Science														
1.0 Capital Line Item (Include project number & identify Funding Program)														
1.1 New Construction (facilities and additions)														
Research Support Building - Ph I MEL-001-027 & PED 03-SC-01-002 & 03-CH-101-4, 39KG0100000	AA0D0030	65,000	6,363	3,646										
BNL Center for Functional Nanomaterials PED 02-SC-02-003 & 05-R-321, 39KC0200000	AA1D0005	94,500	20,313	36,553	18,864									
User Research Building 05-CH-104-0	AA1D0025	54,500								650	14,000	3,700		
Central Chilled Water Facility 05-CH-102-0	N98D0069	3,000									3,600	3,400	3,000	
Research Support Building - Ph II	AA1D0007	65,000												3,000
1.2 All Other Projects (recap)														
Renovate Science Labs - Ph 1 07-CH-101-0, 39KG01000	AA1D0017							3,000	13,000					
Electron Beam Ion Source PED 06-SC-02 & 06-CH-103-0, 39KB02000	-			2,100	4,200	4,200	2,600							
Renovate Science Labs - Ph II	AA1D0018											3,300	14,700	
Subtotal Line Item Projects		130,000	26,676	42,299	23,064	4,200	2,600	3,000	13,000	650	17,600	10,400	17,700	3,000
2.0 General Plant Project (GPP) (Include project number & identify Funding Program)														
2.1 New Construction (facilities and additions)														
GPP - Nuclear Physics														
Visitors Center	A97D0012			300	1,800									
NISUS Wiggler Building	P98D0016				170	1,430								
Expansion of B/560	A99D0038					100	400							
Brookhaven Computing Facility Expansion B/515	AA1D0032						470	1800	1230					
Research Library Addition B/477	A99D0060							150	650					
2.2 All Other Projects (recap)														
GPP - Nuclear Physics														
B/912 Power and Cooling Water Upgrades	AA4D0003		500	225										
Replace Roof B/912 EEA and EEBA	AA3D0035		724	476										
C-A Tritiated Cooling Water System Modifications	AA0D0007		250	250	215									
Storm Outfall 002 Improvements FY03	AA2D0084		356	450	458									
Install Cooling Tower and Chiller B/555	AA3D0049		1,475											
High Bay Upgrade B/510	AA3D0041		650											

Integrated Facilities and Infrastructure Budget Data Sheet (IFI)	Project Number	Gross Building Area	FY 05 Approp. ($000)	FY 06 Approp ($000)	FY 07 Budget ($000)	FY08 Budget ($000)	FY 09 Budget ($000)	FY 10 Budget ($000)	FY 11 Budget ($000)	FY12 Budget ($000)	FY 13 Budget ($000)	FY 14 Budget ($000)	FY 15 Budget ($000)	FY 16 Budget ($000)
SITE NAME: Brookhaven National Lab														
PROGRAM: Science														
Security System Improvements	AA2D0009		100	50										
Modifications for Americans With Disabilities Act Compliance Phase III	AA2D0008		66	50										
Upgrade of Labs W6 and W8, B/703	AA4D0082		50	567										
Upgrade 480V Breakers with Solid State Trips FY05	AA4D0097		100											
Increase Chilled Water Capacity, B/902 JSW Cyclotron	AA4D0058		100											
Upgrade Lab C1, B/815	AA4D0076		400											
Chilled Water Modifications B/463 and B/510	AA4D0053		70											
Backflow Preventors B/463 Remaining	AA4D0093		125	125										
Install Additional Smoke Detectors, B/725 X-Ray	AA4D0048		100											
Site Prep RIKEN II, BNL Super Computer PH II	AA5D0001		80											
Correction of OSHA Deficiencies - Capital	AA4D0070		400	408										
Emergency Power B/629 (B/463 & B/490)	AA4D0079		50	375										
Upgrade BCF Fire Detection System, B/515	AA4D0071		65											
Reconfigure Walls BCF, B/515	AA4D0056		60											
BCF Modifications for RHIC Robots, B/510	AA2D0044		100											
Diesel Emissions Exhaust System	AA4D0085		65											
Install Bollards for Propane Fill Tanks	AA4D0035		66											
RHIC Paving - PHENIX Gas Area and B/1008	AA4D0084		40											
B/725 Upgrade South Westinghouse Elevator	AA2D0082		275											
Upgrade B/510 Freight Elevator	AA5D0002		40	260										
Oxygen Deficiency Monitoring, Mechanical Rooms	AA0D0062		50											
Upgrade Labs 2-115, 2-116 and 2-117, B/510	AA4D0083			400	984									
Hydraulic Elevator Upgrade B/463	AA3D0054			250										
Conference Room Upgrade, B/460	A99D0096			125										
Renovation of Biology Department Conference Room	AA1D0061			150										
Archive Records Storage Fire Protection Upgrade B/494	A96D0039			93										
Steam System Improvements Sitewide	AA1D0085			250	250	250	250	250	250					
Backflow Preventors Backlog	AA1D0045			100	100	100	100	100	100					
B/463 Renovation of Lab 117	A99D0076			50	450									
Recolds Holding Area Upgrade	N98D0041			150										
Air Conditioning Meeting Space North Room Brookhaven Center	A98D0113			656										
Fiber Cable WWTF: Update Ethernet Control System	AA4D0065			100										
Site Emergency Generator Resistive Loadbank	A98D0024			390										
Install New North Gate Security Booth and Roadway	A94D0004			120										
Increase CCWF Cooling Tower Capacity	AA2D0071			247	950	603								
Security System Improvements FY07-09	AA4D0027				50	50	50							

Integrated Facilities and Infrastructure Budget Data Sheet (IFI)	Project Number	Gross Building Area	FY 05 Approp. ($000)	FY 06 Approp ($000)	FY 07 Budget ($000)	FY08 Budget ($000)	FY 09 Budget ($000)	FY 10 Budget ($000)	FY 11 Budget ($000)	FY12 Budget ($000)	FY 13 Budget ($000)	FY 14 Budget ($000)	FY 15 Budget ($000)	FY 16 Budget ($000)
SITE NAME: Brookhaven National Lab														
PROGRAM: Science														
Modifications for Americans With Disabilities Act Compliance FY07-09	AA4D0029				50	50	50							
Relocate Spray Shop to B/244	AA3D0034				125									
Temperature/Humidity Control Modifications to PC Lab B/535	A99D0057				130									
BNL Vehicle Radiation Monitor Replacement	AA3D0024				95									
Convert Cubicles to Lab Space for Genome B/463	AA1D0072				70									
Additional Vehicle Parking B/911	AA1D0086				85									
Machine Shop Expansion B/801	AA1D0100				109									
Back Pressure Control Enhancements (B/701 Piping Mod)	A98D0016				60									
New Transformer #9	N98D0086				199	870	731							
B/610 Exterior Repairs	A98D0101				450									
Relocate External Air Intake B/535	A99D0059					50								
Asbestos Abatement B/488	A92D0130					700								
Emergency Power B/30 and B/321	AA4D0078					200								
B/479 Air Conditioning Phase II	N98D0088					225								
Sanitary Main Radiation/pH Level Detection Systems	A99D0006					200	500							
Gas Detector Clean Room Upgrade	A98D0082					80								
Ductless A/C B/535 Rooms B-108A,. B-108B, B-113, B-113A	A99D0056					45								
Cooling Tower Basin Relining	A98D0166					120								
Security Improvements B/449	AA2D0085					30								
Collider Accelerator Steel Yard Paving	AA3D0027					700								
13.8 kV Distribution Reinforcement - Phase I	N98D0107					375								
YAG Laser Mezzanine Extensioin	P98D0030					150								
Replace Transite Water Mains at Brookhaven Ave. and Princeton Ave.	A98D0030					500								
Relocate B/725 Liquid Nitrogen Delivery Fill Station	AA4D0088					45	0							
Princeton/Upton Intersection and Signal Improvements	AA1D0115					87	663							
13.8 kV Distribution System Reinforcement Phase II	N98D0108						200	800						
AGS MMPS Loss Prevention and Containment	A98D0167						150	400						
Replacement of Passenger Elevator B/701	AA0D0031						250							
Connection of Well 102 to Supply System	A99D0061						300							
CCWF Tower Blowdown Modification	N98D0116						50							
Elimination of Water Treatment Chemicals at AGS	A98D0168						150	350						
Hazardous Material Protection Security Improvement Phase I	AA0D0038						150							
Reinforce B/725-B/535 Tunnel for Helium Recovery	AA4D0057						75							
Power Monitoring System	P98D0018						375							
New Traffic Lights at Main Gate	A98D0174						120							
TTB Power Supply Houses Fire Suppression System	A97D0002						300							

Integrated Facilities and Infrastructure Budget Data Sheet (IFI)	Project Number	Gross Building Area	FY 05 Approp. ($000)	FY 06 Approp ($000)	FY 07 Budget ($000)	FY08 Budget ($000)	FY 09 Budget ($000)	FY 10 Budget ($000)	FY 11 Budget ($000)	FY12 Budget ($000)	FY 13 Budget ($000)	FY 14 Budget ($000)	FY 15 Budget ($000)	FY 16 Budget ($000)
SITE NAME: Brookhaven National Lab														
PROGRAM: Science														
Remove Flammable Foam Duct Insulation Sitewide	A93D0005						500							
Convert Lounge to Offices, Room 5-131 B/490	AA3D0023						55							
Cable Tray Upgrade C-A Department	X92D0144						400							
Security Improvements to Water System	AA4D0047						150							
Upgrade Line Drivers for Site Fire Alarm System	A96D0012						100							
Replacement of Chemical Fume Hoods, B/463	AA3D0037						300	0						
B/936 Insulate and Heat	N98D0032						40	0						
Apartment Area Potable Water Piping Replacement	N98D0064						271	604						
Security System Improvements FY10 - FY12	AA4D0028							50	50					
Modication for Americans With Disabilities Act Compliance FY10 - FY12	AA4D0030							50	50					
Hazardous Material Protection - Security Improvement Phase II	AA0D0039							250						
Neutron Detector Test Facility	A99D0080							500						
Upgrade AGS Power Distribution System Fan House A	P98D0010							200						
Upgrade AGS Power Distribution System Fan House B	P98D0026							200						
Fire Suppression System Maintenance Area Clean Air Act Upgrade	B94D0027							75						
Rupture Disk Relief Valves R-11 Chillers	P95D0002							126						
Site Fire Alarm System Fiber Optic Cable Upgrades	B94D0028							525						
B/463 Renovation of Lab 116	A99D0074							500						
Additional Lighting Cafeteria Dining Area	AA1D0077							200						
B/479 Air Conditioning Phase III	N98D0075							200						
Upgrade AGS Power Distribution System Fan House C, D, E	P98D0027								800					
B/463 Renovation of Lab 118	A99D0075								500					
Replacement of New A/C Equipment (5) AGS Fan Houses	A98D0046								425					
Extend Steam Main to B/422 and B/244	A98D0089								150					
Water Main Replacement Technology Street	A99D0003								912					
Construct Elevator Room Fire Rated Enclosures	A98D0188								50					
B/911 Cooling Water Supply	AA2D0059								100					
New Tile Floor Throughout B/535	A98D0086								100					
Canopy Over Gas Pumps, Public Service Station	AA1D0069								135					
Fire Protection for Wooden Cooling Towers	X92D0145								400					
Connect Boiler Blowdown to Sanitary	A93D0128								65					
Fire Barrier Upgrade	AA1D0084								100					
Restore Required AGS Fire Protection Flow Capacity	AA2D0047								320					
B/515 Carpet Flooring	AA2D0064								120					
Alternate Power Source for Helium Recovery	A98D0031								100					
Ceiling and Light Replacement B/535B	A98D0085								150					

FY 05 Facilities and Infrastructure Budget Crosscut

Integrated Facilities and Infrastructure Budget Data Sheet (IFI)	Project Number	Gross Building Area	FY 05 Approp. ($000)	FY 06 Approp ($000)	FY 07 Budget ($000)	FY08 Budget ($000)	FY 09 Budget ($000)	FY 10 Budget ($000)	FY 11 Budget ($000)	FY12 Budget ($000)	FY 13 Budget ($000)	FY 14 Budget ($000)	FY 15 Budget ($000)	FY 16 Budget ($000)
SITE NAME: Brookhaven National Lab														
PROGRAM: Science														
Relocation of Biology Department Library	AA1D0062								450					
Extension of B/1101 Fire Sprinker System	AA1D0087								65					
B/463 Renovation of Labs 167 & 170	N98D0039								253					
Various Projects TBD	Various									7,751	7,983	8,223	8,469	8,724
Subtotal GPP Nuclear Physcis:			6,357	6,617	6,800	6,960	7,150	7,330	7,525	7,751	7,983	8,223	8,469	8,724
AIP-BES														
Indntification of Panels and Disconnect Switches	73100		132											
Subtotal AIP Basic Energy Sciences			132	0	0	0	0	0	0	0	0	0	0	0
3.0 Institutional General Plant Project (IGPP)														
None														
Subtotal IGPP Projects		0	0	0	0	0	0	0	0	0	0	0	0	0
4.0 Operating/Expense for Excess Elimination and Other														
4.1 Excess Elimination (demolition, sale, lease, transfer) Show area eliminated in Gross Area column														
Excess Facilities Demolition -05(B/197-Partial,B/244-Partial,492,527,933B,934,650A)	N98D0099	10,157	405											
Excess Facilities Demolition -06 (B/86, B/650 Ph I)	N98D0099	11,097		600										
Excess Facilities Demolition - 07 (B/650 PhII)	N98D0099	-			2,750									
Excess Facilities Demolition - 08 (B/650 PhIII)	N98D0099	12,408				2,750								
Excess Facilities Demolition - 09 (B/491 Ph I)	N98D0099						1,000							
Excess Facilities Demolition - 10 (B/491 Ph II)	N98D0099							23000						
4.1 Subtotal			405	600	2,750	2,750	1,000	23,000	0	0	0	0	0	0
4.2 All Other Direct(List direct O&E maintenance under 5.1)														
None														
4.2 Subtotal			0	0	0	0	0	0	0	0	0	0	0	0
Subtotal Operating/Expense Projects														
TOTAL Capital & Operating Investment:			33,438	49,516	32,614	13,910	10,750	33,330	20,525	8,401	25,583	18,623	26,169	11,724
TOTAL Overhead Investments (IGPP)			0	0	0	0	0	0	0	0	0	0	0	0

FY 05 Facilities and Infrastructure Budget Crosscut

Integrated Facilities and Infrastructure Budget Data Sheet (IFI)	Project Number	Gross Building Area	FY 05 Approp. ($000)	FY 06 Approp ($000)	FY 07 Budget ($000)	FY08 Budget ($000)	FY 09 Budget ($000)	FY 10 Budget ($000)	FY 11 Budget ($000)	FY 12 Budget ($000)	FY 13 Budget ($000)	FY 14 Budget ($000)	FY 15 Budget ($000)	FY 16 Budget ($000)
SITE NAMEBrookhaven National Lab														
PROGRAM: Science														
5.0 Maintenance & Repair														
5.1 Direct Funded (SC Programs)														
High Energy Physics	KA		139	139	139	139	139	139	139	139	139	139	139	139
Nuclear Physics	KB		1,864	1,864	1,864	1,864	1,864	1,864	1,864	1,864	1,864	1,864	1,864	1,864
Basic Energy Science	KC		862	862	862	862	862	862	862	862	862	862	862	862
Biological & Environmental Research	KP		29	29	29	29	29	29	29	29	29	29	29	29
Safeguard & Security	FS		80	80	80	80	80	80	80	80	80	80	80	80
Groundwater Projects (LTRA)	EZ061230		0	0	0	0	0	300	311	318	326	333	341	350
BGRR (LTRA)	EZ061240		0	0	0	0	0	269	276	283	289	296	303	311
HFBR (LTRA)	EZ1212410		0	0	0	0	0	488	498	510	522	535	548	561
Subtotal direct program			2,974	2,974	2,974	2,974	2,974	4,031	4,059	4,085	4,111	4,138	4,166	4,196
SC - DM Reduction Program														
Roof Replacement	A98D0014		-	-	800	2,000	3,000	4,000	-	-	-	-	-	-
Science Laboratory Buildings Rehab	AA1D0067		-	500	4,080	7,000	11,150	16,960	-	-	-	-	-	-
Air Handler Replacements	AA1D0082		-	250	1,000	1,500	2,000	500	-	-	-	-	-	-
Replace Fire Aalarm Panels	AA1D0003		-	270	250	275	-	-	-	-	-	-	-	-
Rehab Hydraulic Elelvators	AA1D0137		-	-	500	525	1,000	2,000	-	-	-	-	-	-
Chiller Replacements	A99D0097		-	-	-	600	700	-	-	-	-	-	-	-
Subtotal GPP DM Reduction Program:			-	1,020	6,630	11,900	17,850	23,460	-	-	-	-	-	-
Total Direct Funded (SC Programs) - Note 1,2,3			2,974	3,994	9,604	14,874	20,824	27,491	4,059	4,085	4,111	4,138	4,166	4,196
Direct Funded (Non-SC Programs in SC Buildings)	Various		518	518	518	518	518	518	518	518	518	518	518	518
Total Direct Maintenance & Repair			3,492	4,512	10,122	15,392	21,342	28,009	4,577	4,603	4,629	4,656	4,684	4,714
5.2 Indirect (from Overhead or Space Charges)														
PE Maintenance Budget (100% Space Charge)	Various		14,543	14,543	14,543	14,543	14,543	14,543	14,543	14,543	14,543	14,543	14,543	14,543
PE Maintenance Projects (Space)	Various		765	2,118	3,718	3,848	3,983	4,122	4,266	4,416	4,570	4,730	4,896	5,067

Integrated Facilities and Infrastructure Budget Data Sheet (IFI)	Project Number	Gross Building Area	FY 05 Approp. ($000)	FY 06 Approp ($000)	FY 07 Budget ($000)	FY08 Budget ($000)	FY 09 Budget ($000)	FY 10 Budget ($000)	FY 11 Budget ($000)	FY 12 Budget ($000)	FY 13 Budget ($000)	FY 14 Budget ($000)	FY 15 Budget ($000)	FY 16 Budget ($000)
SITE NAMEBrookhaven National Lab														
PROGRAM: Science														
Chargeback from Indirects, Non-Cap	Various		1,423	1,423	1,423	1,423	1,423	1,423	1,423	1,423	1,423	1,423	1,423	1,423
Other Divisions Indirect Maintenance	Various		583	583	583	583	583	583	583	583	583	583	583	583
BNL Maintenance Projects (G&A & Space) - See Listing Below	03875													
Air Handler Replacements K-3,6	AA1D0132		11											
Gym Rehabilitation	AA3D0003		65											
Roof Replacement B/490 Block 11 Animal Wing	AA4D0089		370											
Replace Fire Alarm Panels, B/921	AA4D0094		42											
Replace Fire Alarm Panels, B/515	AA1D0130		117											
Roof Replacement B/480 Hi-Bay Balance	AA4D0091		15	215										
Replacement Air Conditioner B/449	AA0D0044		70	60										
Renovate Lab 9-801, B/490	AA4D0052		45	205										
Repair Steam Main Servicing B/560	AA4D0086		145											
Heat Detector Replacement Project	AA2D0074		100	400	400	398								
Emergency Power B/599 and B/449	AA4D0077		76											
Renovate Lab Suite 164, 167, B/463	AA4D0064		50	820										
Remove/Replace Five Old Underground #2 Fuel Tanks	AA3D0025		71											
Replace Fire Alarm Panels, B/555	AA4D0095		20	96										
Correction of OSHA Deficiencies Maintenance	AA4D0070		160	450	450	450	498							
B/815 Air Handler Replacements, AC-1	AA3D0053		14	236										
Replacement of Critical HVAC Systems, ATF B/820	AA4D0081		50	250										
Atlas Physics Analysis Center	AA4D0066		75											
Steam System Improvements MH44	AA4D0092		250											
NFPA 70E Arc Flash Hazard Risk Analysis	AA5D0004		150	200										
Chiller Replacements	A99D0097			50	278	354	700	1000	1053	500	525	550	575	600
Air Handler Replacements	AA1D0082			250	250	250	500	750	750	750	775	800	825	850
Replace Elevators	AA1D0137			250	250	250	500	750	750	775	500	525	550	575
Replace Various Fire Alarm Panels	AA1D0003			150	150	150	300	600	600	600	600	600	600	600
Roofing Replacements	A98D0014			250	250	500	750	1279	1400	1500	1600	1700	1800	1900
Retrofit 480V Breakers With Solid State Trip Devices Backlog	P95D0004			100	100	100	100	100	200	100	100	100	100	100

Integrated Facilities and Infrastructure Budget Data Sheet (IFI)	Project Number	Gross Building Area	FY 05 Approp. ($000)	FY 06 Approp ($000)	FY 07 Budget ($000)	FY08 Budget ($000)	FY 09 Budget ($000)	FY 10 Budget ($000)	FY 11 Budget ($000)	FY 12 Budget ($000)	FY 13 Budget ($000)	FY 14 Budget ($000)	FY 15 Budget ($000)	FY 16 Budget ($000)
SITE NAMEBrookhaven National Lab														
PROGRAM: Science														
Renovation of Laboratory Space	AA5D0009						1196	2200	2300	3196	3694	3896	4103	4314
Renovate Lab Suite 267/270, B/463	AA4D0060			211	589									
Renovation for Office Space B/421	AA1D0066			25										
PCB Electric Ballast Replacement - PH I	AA1D0107				195									
Renovate Lab Suite 117, B/463	AA4D0062				100	400								
Replace Boiler, Brook Ctr, B/30	AA1D0108				80									
Soil Stabilization at RHIC, Phase I	AA1D0088				450									
Electrical Distribution Panel Labeling	AA3D0029				500	500	525							
Repair Loading Dock B/488	A97D0062				160									
Replace Distilled Water System, B/463	AA3D0018				500									
Renovate Lab Suite 182, B/463	AA4D0059				100	400								
Renovate Room B-3, B/490	AA4D0054				77	423								
Paint 300,000 Gal Water Tank	N98D0049				389									
B/912 Replace Oil Switches to Air	N98D0072				250									
Renovate Lab Suite 284, B/463	AA4D0061					103	497							
Upgrade Control Sys Interface/Grph	A98D0021					58								
Gutter Screens for Frame Bldgs	A98D0078					50								
Smoke Detector Replacement NSLS	AA1D0056					250								
CCWF - Air Compressor Driers	N98D0115					50								
AGS Ring Roof Repairs	A99D0068					275								
B/810/811 Surface Improvement of D-Tanks #3 & #4	AA4D0072					45								
Replace 13.8kV Feeder 919-1	A98D0206					360								
B/464 Replace Water Cooled A/C	N98D0044					70								
Fall Protection/Roof Anchors for PM, Phase IV	AA2D0066					50								
B/371, Replace Windows & Siding - Brookhaven House	AA2D0072					100								
Replace O/H Electric Lines w/UG Cable Harvard	N98D0023					175								
Replacement of Cooling Tower #4 at AGS	AA2D0060					225								
Repair Sagging Foundation, B/630	A98D0121						28							
Fire Door Upgrades, Various Buildings	A93D0261						90							

Integrated Facilities and Infrastructure Budget Data Sheet (IFI)	Project Number	Gross Building Area	FY 05 Approp. ($000)	FY 06 Approp ($000)	FY 07 Budget ($000)	FY08 Budget ($000)	FY 09 Budget ($000)	FY 10 Budget ($000)	FY 11 Budget ($000)	FY 12 Budget ($000)	FY 13 Budget ($000)	FY 14 Budget ($000)	FY 15 Budget ($000)	FY 16 Budget ($000)
SITE NAMEBrookhaven National Lab														
PROGRAM: Science														
Thermoplastic Road Markings Sitewide	AA1D0128						50							
B/317 Rehab	AA2D0061						130							
Refurbish Chem. Glass Washing Lab	AA1D0096						25							
Boiler 1A Retube Front Half	A98D0092						120							
B/535 Air-Conditioning for Room B-148	A98D0084						25							
Replace Skirting & Foundation Vents, Various Buildings	N98D0025						50							
B/510 Replace Chilled Water Valves Mains	N98D0035							10						
Replace Existing Sidewalks, Provide ADA Acc.	AA1D0125						250							
Total BNL Maintenance Projects (100% from G&A)			1,896	4,218	5,518	5,986	6,334	6,689	7,053	7,421	7,794	8,171	8,553	8,939
Total Indirect Maintenance & Repair			19,210	22,885	25,785	26,383	26,866	27,360	27,868	28,386	28,913	29,450	29,998	30,555
6.0 Indirect O&E Excess Elimination (demolition, sale, lease, transfer) Show area eliminated in Gross Area column														
None			0	0	0	0	0	0	0	0	0	0	0	0
Total Indirect Excess Elimination			0	0	0	0	0	0	0	0	0	0	0	0

Integrated Facilities and Infrastructure Budget Data Sheet (IFI)	Project Number	Gross Building Area	FY 05	FY 06	FY 07	FY08	FY 09	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16
SITE NAME: Brookhaven National Lab														
PROGRAM: Science														
7.0 Area of Excess Eliminated														
number, and excess AREA eliminated by fiscal year accomplished.														
Line Item														
Research Support Building - Ph I	AA0D0030	10,400			10,400									
Center for Functional Nanomaterials	AA1D0005					0								
User Research Building	AA1D0025												54,500	
GPP														
None			0	0	0	0	0	0	0	0	0	0	0	-
IGPP														
None			0	0	0	0	0	0	0	0	0	0	0	-
Operations/Expense														
Excess Facilities Demolition -05(B/197-Partial,B/244-Partial,492,527,933B,934,650A)	N98D0099	10,157	10,157											
Excess Facilities Demolition -06 (B/86, B/650 Ph I)	N98D0099	11,097		11,097										
Excess Facilities Demolition - 07 (B/650 PhII)	N98D0099	0			0									
Excess Facilities Demolition - 08 (B/650 PhIII)	N98D0099	12,408				12,408								
Indirect Operations/ Expense														
None														
Transfer by sale or lease, or transfer to an outside federal agency		0	0	0	0	0	0	0	0	0	0	0	0	0
None														
Subtotal of Excess Facility Area Eliminated		33,662	10,157	11,097	10,400	12,408	0	0	0	0	0	0	54,500	0
Visitors Center	A97D0012	5,000				5,000								
NISUS Wiggler Building	P98D0016	4,800					4,800							
Expansion of B/560	A99D0038	1,500						1,500						
Brookhaven Computing Facility Expansion B/515	AA1D0032	5,000							5,000					
Research Library Addition B/477	A99D0060	3,900							3,900					
Research Support Building - Ph I MEL-001-027 & PED 03-SC-0	AA0D0030	65,000			65,000									
BNL Center for Functional Nanomaterials 05-R-321	AA1D0005	94,500			94,500									

Integrated Facilities and Infrastructure Budget Data Sheet (IFI)	Project Number	Gross Building Area	FY 05	FY 06	FY 07	FY08	FY 09	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16
SITE NAME: Brookhaven National Lab														
PROGRAM: Science														
7.0 Area of Excess Eliminated														
number, and excess AREA eliminated by fiscal year accomplished.														
Total Area to be Added by GPP, IGPP, and LI Construction (List Area Under Occupancy Year)		179,700	-	-	159,500	5,000	4,800	1,500	8,900					

FY 05 Facilities and Infrastructure Budget Crosscut

Integrated Facilities and Infrastructure Budget Data Sheet (IFI)	Project Number	Gross Building Area	FY 05 Approp. ($000)	FY 06 Approp ($000)	FY 07 Budget ($000)	FY08 Budget ($000)	FY 09 Budget ($000)	FY 10 Budget ($000)	FY 11 Budget ($000)	FY12 Budget ($000)	FY 13 Budget ($000)	FY 14 Budget ($000)	FY 15 Budget ($000)	FY 16 Budget ($000)
SITE NAME: Brookhaven National Lab														
PROGRAM: Environmental Management														
1.0 Capital Line Item (Include project number & identify Funding Program)														
1.1 New Construction (facilities and additions)														
None														
1.2 All Other Projects (recap)														
None														
Subtotal Line Item Projects			0	0	0	0	0	0	0	0	0	0	0	0
2.0 General Plant Project (GPP) (Include project number & identify Funding Program)														
2.1 New Construction (facilities and additions)														
None														
2.2 All Other Projects (recap)														
None														
Subtotal GPP:			0	0	0	0	0	0	0	0	0	0	0	0
3.0 Institutional General Plant Project (IGPP)														
None														
Subtotal IGPP Projects		0	0	0	0	0	0	0	0	0	0	0	0	0
4.0 Operating/Expense for Excess Elimination and Other														
4.1 Excess Elimination (demolition, sale, lease, transfer) Show area eliminated in Gross Area column														
None	`													
4.1 Subtotal			0	0	0	0	0	0	0	0	0	0	0	0
4.2 All Other Direct(List direct O&E maintenance under 5.1)														
None														
4.2 Subtotal			0	0	0	0	0	0	0	0	0	0	0	0
Subtotal Operating/Expense Projects														
TOTAL Capital & Operating Investment:			-	-	-	-	-	-	-					
TOTAL Overhead Investments (IGPP)			0	0	0	0	0	0	0	0	0	0	0	0

FY 05 Facilities and Infrastructure Budget Crosscut

Integrated Facilities and Infrastructure Budget Data Sheet (IFI)	Project Number	Gross Building Area	FY 05 Approp. ($000)	FY 06 Approp ($000)	FY 07 Budget ($000)	FY08 Budget ($000)	FY 09 Budget ($000)	FY 10 Budget ($000)	FY 11 Budget ($000)	FY12 Budget ($000)	FY 13 Budget ($000)	FY 14 Budget ($000)	FY 15 Budget ($000)	FY 16 Budget ($000)
SITE NAMEBrookhaven National Lab														
PROGRAM: Environmental Management														
5.0 Maintenance & Repair														
5.1 Direct Funded (by HQ or Site Program)														
EX - Environmental Management - Non Defense			-	-										
List direct O/E maintenance projects														
BGRR	EZ061230		450	400	380	330	342							
HFBR	EZ061240		385	239	246	254	261							
ER Groundwater Projects	EZ1212410		545	563	452	462	477							
Total Direct Maintenance & Repair (Note 1)			1,380	1,202	1,078	1,046	1,080	0	0	0	0	0	0	0
5.2 Indirect (from Overhead or Space Charges)			-	0	0	0	0	0	0	0	0	0	0	0
Total Indirect Maintenance & Repair			-	-	-	-	-	-	-					
6.0 Indirect O&E Excess Elimination (demolition, sale, lease, transfer) Show area eliminated in Gross Area column														
None		0	0	0	0	0	0	0	0	0	0	0	0	0
Total Indirect Excess Elimination			0	0	0	0	0	0	0	0	0	0	0	0

Note 1 EM Groundwater, BGRR and HFBR projects transfer from EM to SC in FY10

Integrated Facilities and Infrastructure Budget Data Sheet (IFI)	Project Number	Gross Building Area	FY 05	FY 06	FY 07	FY08	FY 09	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16
SITE NAMEBrookhaven National Lab														
PROGRAM: Environmental Management														
7.0 Area of Excess Eliminated														
List of projects, by type of funding, with project number, and excess AREA eliminated by fiscal year accomplished.														
Line Item														
None														
GPP														
None														
IGPP														
None														
Operations/Expense														
None														
Indirect Operations/ Expense														
None														
Transfer by sale or lease, or transfer to an outside federal agency														
None														
Subtotal of Excess Facility Area Eliminated		-	-	-	-	-	-	-	-					
None														
Total Area to be Added by GPP, IGPP, and LI Construction (List Area Under Occupancy Year)		-	-	-	-	-	-	-	-					

Section 7

Directorate Plans

DIRECTORATE PLANS

7.1 INTRODUCTION

BNL conducts all work and operates all facilities with distinction, fully integrated with and supportive of its science, technology, and cleanup missions. The Laboratory's Directorate structure allows it to respond to changing situations and needs. This structure consists of Science Directorates, each headed by an Associate Laboratory Director and Support Directorates, headed by Assistant Laboratory Directors. The Associate Laboratory Directors and several support divisions and offices report to the Laboratory Director who is assisted by a Deputy Director for Science and Technology and a Deputy Director for Operations; the Assistant Laboratory Directors report to the Director or to the Deputy Director for Operations. There are also several other organizations that report to the Deputy Directors. Reporting to the Associate Laboratory Directors are scientific department and division heads; reporting to the Assistant Laboratory Directors are the heads of support divisions and offices. Table 7-1 shows BNL's Organization Chart.

Directorate Plans were developed to show the reporting organizations. Information related to their occupied space as a percent of building, facility condition information in the form of building age and Facility Condition Index (FCI), and project needs can be found in the following Appendices:

Appendix A	Active Facilities
Appendix B	Operational Excess Facilities
Appendix C	Excess Facilities
Appendix D	Project Listing By Directorate
Appendix E	Building Use by Group
Appendix F	Directorate Building Use

FCI is the ratio of deferred maintenance to building RPV. As a rough indicator the following descriptions are used to translate FCI values:

FCI %	**Building Condition**
0 – 2	Excellent
2 – 5	Good
5 – 15	Adequate
15 – 25	Fair
25 – 60	Poor
60 +	Fail

Directorate Plans are as follows:

Deputy Director for Science & Technology

- Computational Science Center
- Information Technology Division
- Information Services Division

Science Directorates

- Associate Laboratory Director for High Energy & Nuclear Physics
  - Physics Department
  - Instrumentation Division
  - Collider-Accelerator Department
  - Superconducting Magnet Division
- Associate Laboratory Director for Basic Energy Sciences
  - Center for Functional Nanomaterials
  - Chemistry Department
  - Materials Science Department
  - Condensed Matter Physics Division of the Physics Department
- Associate Laboratory Director for Light Sources
  - National Synchrotron Light Source
- Associate Laboratory Director for Life Sciences
  - Biology Department
  - Medical Department
- Associate Laboratory Director for Energy, Environmental & National Security
  - Environmental Sciences Department
  - Energy Sciences & Technology Department
  - Nonproliferation & National Security Department

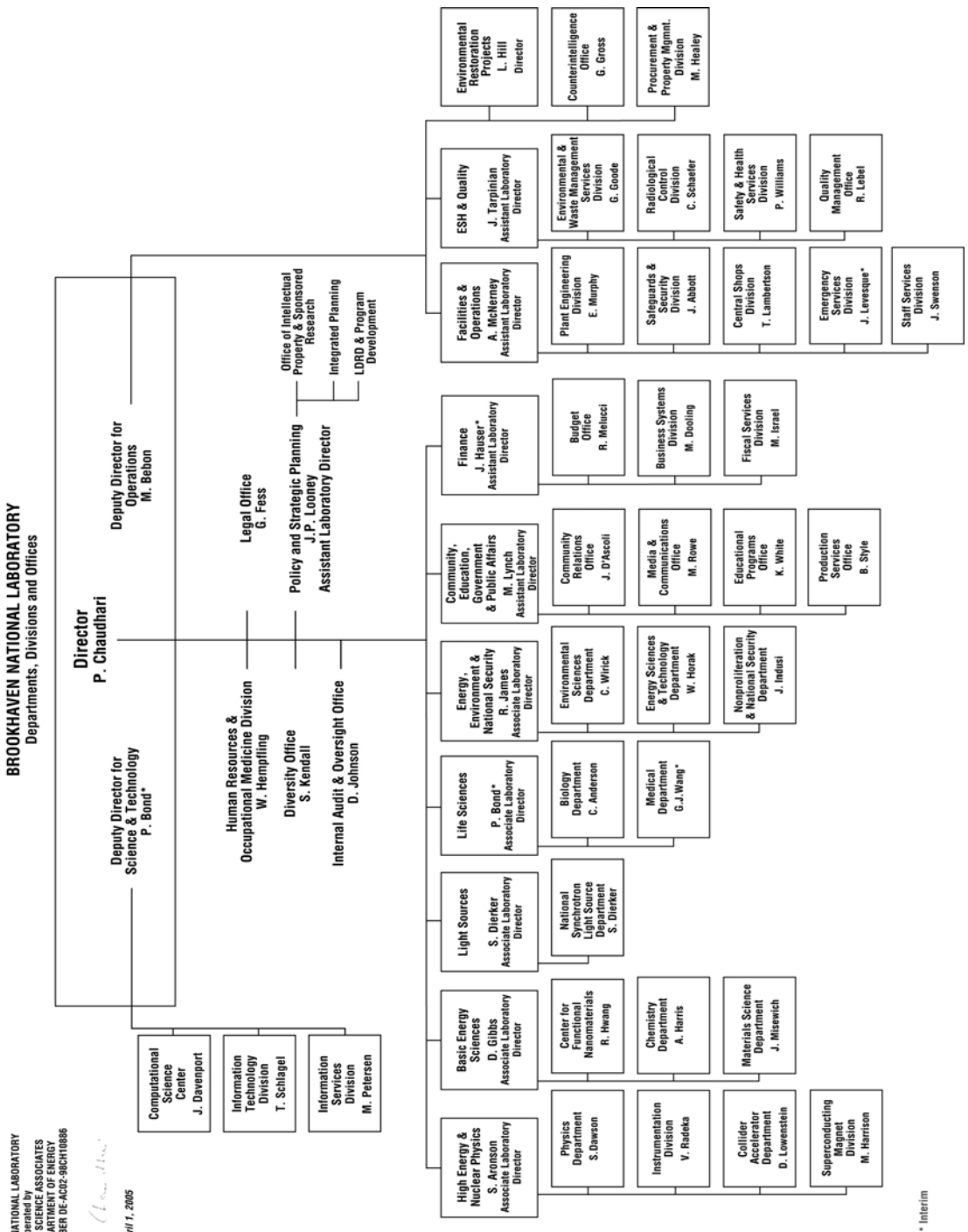
Support Directorates / Divisions/Offices – Reporting Directly to the Director

- Assistant Laboratory Director for Policy and Strategic Planning
  - Office of Intellectual Property & Sponsored Research
  - Integrated Planning
  - LDRD & Program Development
- Community, Education, Government & Public Affairs Directorate
  - Community Relations Office
  - Media & Communications Office
  - Educational Programs Office
  - Photography and Graphics Arts Division
- Finance Directorate
  - Budget Office
  - Business Systems Division
  - Fiscal Services Division
- Human Resources & Occupational Medicine Division
- Diversity Office
- Internal Audit & Oversight Office
- Legal Office

Support Directorates/Divisions/Offices Reporting to the Deputy Director for Operations

- Environmental Restoration Projects
- Counterintelligence Office
- Procurement & Property Management Division
- Facilities and Operations Directorate
  - Plant Engineering Division
  - Safeguards & Security Division
  - Central Fabrication Services Division
  - Emergency Services Division
  - Staff Services Division
- ESH & Quality Directorate
  - Environmental & Waste Management Division
  - Radiological Control Division
  - Safety & Health Services Division
  - Quality Management Office

TABLE 7-1 BNL Organizational Chart



7.2 DEPUTY DIRECTOR FOR SCIENCE & TECHNOLOGY

The Deputy Director for Science & Technology oversees two divisions the Information Technology Division (AO) and the Information Services Division (ID), and the Computational Science Center (CC).

Mission: The Information Technology Division supports the scientific and advanced technology initiatives in computing hardware and software, as well as making telecommunications services available for the entire Laboratory. Major functions of the Information Services Division include the Research Library, BNL Publications, BNL Records Management, and Technical Writing/Editing. The Brookhaven Computational Science Center brings together researchers in biology, chemistry, physics, and medicine with applied mathematicians and computer scientists to exploit the opportunities for scientific discovery which have been enabled by modern computers.

Funding: The Information Technology Divisions budget for FY05 is $17.5M, composed of $2.5M from G&A and $15M from charge-backs. The Information Services budget was $3.3M in FY05. Funding for FY06 is expected to remain at the same $17.5M level.

Facilities Assessment / Issues: Buildings 515 and 459, currently occupied by the Information Technology Division house the computer centers and a variety of user offices; they contain raised flooring. Since additional raised floor space will be required to keep up with the Laboratory's expanding computer needs, the user offices in Buildings 510 and 515 have to be relocated. The adjacent modular building (temporary wood structure), occupied by the Help Desk and Desk Side support groups will be demolished or relocated in order to make room for the proposed User Research Center . Additional office space in close proximity will be required to house them and the displaced users.

The Information Services Division occupies storage, office and Library space in Buildings 477, 494, and 130, which are original Camp Upton buildings that need upgrading, repair or replacement. The current Records Holding Area (building 494) is a converted animal research facility that is not yet compliant with regulatory standards for the storage of federal records. The construction of a new building to house Information Services functions and an Institutional Archive would be more cost-effective than upgrading and maintaining current facilities. It will also improve operational efficiency of the division.

The 14 staff members of the Computational Science Center reside in the Biology Department, Bldg. 463. Additional space for hardware and a significantly larger staff will be needed as Computational Biology grows at BNL.

7.3 HIGH ENERGY AND NUCLEAR PHYSICS DIRECTORATE

The High Energy & Nuclear Physics Directorate (HE&NP) encompasses two departments and two divisions: The Collider Accelerator Department (AD), the Physics Department (PO), the Superconducting Magnet Division (AM) and the Instrumentation Division (IO). In addition there is directorate staff (DB).

Mission: The Physics Department carries out and provides support for basic research in high energy, nuclear and condensed matter physics performed at Brookhaven

National Laboratory and at other sites in the U.S. and abroad. Both experimental and theoretical research is carried out along with the development of instrumentation pertinent to BNL's mission.

The Collider-Accelerator Department has numerous and varied roles. It develops, improves and operates the suite of particle/heavy ion accelerators used to carry out the program of accelerator-based experiments at BNL. It supports the experimental program including the design, construction and operation of the beam transports to the experiments, plus the detector and research needs of the experiments. It designs, and constructs new accelerator facilities in support of the BNL and national missions. The department supports an international user community of ~1,500 scientists. All these functions are performed in an environmentally responsible and safe manner under a rigorous conduct of operations approach.

The Superconducting Magnet Division produces various superconducting magnets for use in both particle accelerators and experimental facilities. Work is conducted in the U.S. High Energy Physics community on future facilities and technologies. Ongoing collaborations with other scientific institutions worldwide provide and develop superconducting technologies. The Division also aids the research program at Brookhaven with emphasis on the RHIC complex. Capabilities include the superconducting materials development/test facility, the design of magnetic structures, fabrication of superconducting magnets, and vertical and horizontal cryogenic testing and magnetic field measurements.

The Instrumentation Division develops state-of-the-art instrumentation required for experimental research programs at BNL, and maintains the expertise and facilities in specialized high technology areas essential for this work. BNL's present research programs and its anticipated future directions motivate the development of our facilities. The research efforts also significantly impact programs throughout the world that rely on state-of-the-art radiation detectors and readout electronics

Funding: The Directorate's funding for FY05 is approximately $158M, with the funding for FY06 Presidential Guidance is $148M. The Laboratory has submitted a supplemental request for additional $18M.

Facilities Assessment / Issues: Most of the facilities occupied by the High Energy & Nuclear Physics Directorate are in at least adequate condition. However, the larger laboratory / office buildings which were constructed mainly in the 1960s need major refurbishment. C-AD has a unique suite of scientific accelerators that can serve a wide range of the goals of High Energy and Nuclear Physics. The Accelerator Test Facility (ATF), Tandem Van de Graaff, Alternating Gradient Synchrotron (AGS), NSRL, and Relativistic Heavy Ion Collider host a large international scientific user community annually.

Near term plans call for design and construction of an Electron Beam Ion Source ($20M). Long-term future projects include an electron cooling capability at RHIC, luminosity and detector upgrades, and a polarized electron source (eRHIC) to support the department's mission.

As the program emphasis shifts, facility buildings and systems must be maintained and upgraded to meet new challenges. The B/911, 912, 922, complex that supports the AGS is over 40 years old and requires re-roofing and maintenance to make this space available for new experiments and use. Significant re-roofing work is planned for B/912. The RHIC complex is enormous and although newer it requires annual maintenance to keep it up to date for future endeavors. Our ability to meet the opportunities presented by new national scientific initiatives depends on the viability of our facilities and their readiness for new applications. This investment in the national scientific trust keeps the country at the forefront of scientific research; consequently attracts the best and brightest scientific minds from around the world to participate in these programs.

The Superconducting Magnet Division facilities are deemed adequate for its anticipated near-term and projected use.

The HVAC system of Building 510 is 42 years old and needs replacing. The laboratories in this building require refurbishing and upgrading to meet the current needs. The three elevators in the building need to be replaced as repairs would not be cost effective. The HVAC system of Building 820, the ATF, is old and unreliable. It should be replaced to ensure the ATF's continued operation as a unique user facility for cutting-edge research in accelerator physics.

The Instrumentation Division occupies Buildings 535 and 356. Building 535 is 42 years old and requires the upgrades typical of an aging structure such as plumbing, new ceiling and lights (electrical & fire hazard), new and better energy efficient windows and doors, etc. The electronics laboratories (Labs. 1 & 2) are outdated and will require significant upgrading to meet future needs. Similarly, the electrical systems should be upgraded. Building 356 that houses the Gamma-Ray/Neutron Irradiation Test Facility is a 60-year-old structure that also requires significant rehabilitation.

7.4 BASIC ENERGY SCIENCES DIRECTORATE

The Basic Energy Sciences Directorate (BES) is composed of four organizations: the Chemistry Department (CO); the Materials Science Department (MA); the Condensed Matter Physics Division in the Physics Department; and the Center for Functional Nanomaterials (NC). In addition, there is directorate staff (DC).

Mission: Major program areas include nanoscience, catalysis, correlated electron systems, materials science, and work at the interface of life and physical sciences. The Center for Functional Nanomaterials (CFN) is a new user facility that will be operational in FY 2008.

Funding: The directorate's funding for FY 05 is $38M, and the same level of funding is expected for FY 06 (exclusive of CFN construction funds).

Facilities Assessment / Issues: The Directorate occupies B/480, B/555, B/560, B/906 and parts of B/510, B/703, and B/901. The significant infrastructure related issues are laboratory renovations (particularly fume hoods and cabinets) and HVAC (particularly for ductwork particulates). The directorate's roofing systems were renewed for the most part. The high bay roof in Building 480 needs to be replaced in order to protect the $2M renovation that was recently completed. The roof of west wing of Building 703 needs to

be replaced for similar reasons. Several of the fume hoods in B/555 contain contamination that was sealed, but eventually will need to be removed. . The directorate looks forward to the construction and completion of the Center for Functional Nanomaterials.

7.5 LIGHT SOURCES DIRECTORATE (DL)

The Light Sources Directorate is presently composed of the National Synchrotron Light Source Department (NSLS). A proposal has been submitted, and is currently under review by the DOE Office of Basic Energy Sciences, for the construction of a new National Synchrotron Light Source (NSLS-II), an advanced, highly optimized, third generation, and medium energy storage ring.

Mission: The National Synchrotron Light Source (NSLS) is a large user facility devoted to the production and utilization of synchrotron radiation. It began operation in 1982 as the first facility in the U.S. that was designed expressly for the use of synchrotron radiation. The NSLS operates two electron storage rings and the associated injection system composed of a linear accelerator and a booster synchrotron. The X-ray ring operates at 2.8 GeV, 300 mA and the VUV-IR ring operates at 800 MeV, 1000 mA. The facility hosts an extensive user program built around facility beamlines and participating research team (PRT) beamlines. Currently, there are a total of 64 operating beamlines, with 49 beamlines on the X-ray ring and 15 beamlines on the VUV-IR ring. The NSLS provides essential scientific tools for about 2300 scientists per year who come from more than 400 academic, industrial, and government institutions. The diverse research programs of this large user community produce about 800 publications per year. The facility is an important national and international research resource as well as playing a critical role for the research community in the Northeastern United States.

Funding: The Directorate's funding for FY05 is $43.2 million (inclusive of $3.5 million in Work for Others and $2.4 million LDRD/Program Development funds). Expected funding for FY06 will be approximately $44M.

Facilities Assessment / Issues: Most of the directorate space is adequate including its flagship facility, the National Synchrotron Light Source building (Building 725). However, several support buildings 129, and 728M are wood structures which need replacement.

7.6 LIFE SCIENCES DIRECTORATE

The Life Sciences (LS) Directorate is composed of two departments: Medical (MO) and Biology (BO). In addition, LS has the responsibility for the Imaging Program, which includes scientific staff in the Chemistry (CO) Department.

Mission: Major research program areas include imaging sciences, space radiation and radiation biology, structural biology, plant sciences, molecular and cell biology, microbial communities, radioisotope production, and cancer diagnostics. The Directorate has the responsibility for operating the General Clinical Research Center (GCRC) and the Brookhaven Lab Animal Facility (BLAF).

Funding: The Directorate's funding for FY05 is $30.4M, with expected funding of $28.5M in FY06.

Facilities Assessment / Issues: The directorate's two major facilities, B/463 and B/490, are in fair to poor condition and like other major BNL lab / office building constructed prior to 1970 need major refurbishment. Most are lab/office buildings with the exception of BLAF located in Building 490 which has a specialized and highly regulated function associated with the safe housing of laboratory animals. Upgrade of the emergency power system for Buildings 463 and 490 is necessary to support BLAF and other scientific equipment. To further collaborations and communication between the Biology and Medical Departments, a connection between Building 463 and Building 490 has been proposed and is part of the Site Master Plan. In addition, this connection will provide additional office space which is sorely needed to support the research programs for these departments. It will also improve operational efficiency by consolidating research and administrative functions of the two departments.

Because of the age of the buildings, many laboratories and offices are in disrepair and need to be refurbished as funds become available. Cosmetic improvements to some of the laboratories and offices that support the NASA user program have been made in Building 490. Some GPP funding has been allocated annually to improve laboratory conditions.

7.7 ENERGY, ENVIRONMENT & NATIONAL SECURITY DIRECTORATE

The Energy, Environmental & National Security Directorate is composed of three departments; Environmental Sciences (EE), Energy Sciences (NE), and Nonproliferation & National Security (NN). In addition, there is a directorate staff (DA).

Mission: Major program areas include atmospheric sciences, climate change research, microbial transformation of environmental contaminants, hydrogen research, advanced reactor concepts, advanced liquid fuels, radiation sensors, nuclear materials safeguards, and homeland security.

Funding: The directorates funding for FY05 is $78.5M, with expected FY06 funding of $88.6M .

Facilities Assessment / Issues: On average this Directorate's facilities are Fair to Poor condition. Most are lab/office buildings (703, 815, 830, 901) around 45-years-old in need of major rehabilitation with additional office and lab space in 60-year-old wood frame (130, 179, 197, 475) office buildings which need replacement. Department groups are scattered throughout a number of buildings and would benefit from consolidation. The proposed Energy Science Building would provide needed research space to support consolidation of the Energy Sciences Department as well as allow them to vacate space in B/815 allowing the Environmental Science Department to further consolidate there.

7.8 POLICY AND STRATEGIC PLANNING DIRECTORATE

The Policy and Strategic Planning Directorate is composed of three offices; Integrated Planning Office, LDRD & Program Office and Office of Intellectuals Property & Sponsored Research.

Mission: The Integrated Planning Office ensures seamless alignment of the science and operation/infrastructure missions of the Laboratory, and monitors processes toward achieving the Laboratory's scientific goals.

The Office of Intellectual Property and Sponsored Research is firmly committed to the utilization of Laboratory developed technology and technical capabilities to the benefit of industry and state and local governments. The Laboratory's patent licensing program is a further tool to accomplish commercialization of Brookhaven developed technology.

Funding: The directorates funding for FY05 is $1.9M, with expected FY06 funding of $2.0M.

Facilities Assessment / Issues:
There are no significant issues.

7.9 BNL DIRECTOR AND OTHER DIRECT REPORTS

Reporting to the BNL Director, other than the directorates are a small number of departments and offices. The BNL Director's Office includes the Human Resources & Occupational Medicine Division (PE), the Diversity Office (DV), the Internal Audit & Oversight Office (IA), and the Legal Office (LG). The U.S. Department of Energy, Brookhaven Site Office (AE) is also shown as their space is supported by BNL G&A and billed through this budget area.

Mission: The Laboratory's primary mission has been to pursue scientific research requiring unique, complex, and often large facilities, and to design, construct, and operate those facilities for its scientists and external users. Two large facilities the RHIC-AGS complex and the NSLS dominate the research capabilities and the interest of the approximately 4,000 scientists from the U.S. and abroad who use our facilities ad collaborate with our staff. The Director's goal is to enhance the scientific, technological, and operations of the Laboratory such that the Brookhaven National Laboratory becomes known as the best science laboratory in the world in chosen areas of research.

The Human Resources and Occupational Medicine Division supports the Laboratory by developing and implementing HR programs, processes, and policies that enable the Laboratory to attract, hire, develop, compensate, retain, and reward a highly qualified workforce within the guidelines of all applicable labor agreements, federal and state laws or guidelines.

The Diversity Office supports the Laboratory by recommending to the Laboratory Director policies and procedures to enhance the diversity at the Laboratory and by providing a pipeline of qualified, diverse candidates for employment.

The Internal Audit & Oversight Office provides objective assurance and consulting activity designed to add value and improve BNL's operations and governance processes.

Funding: The Directorate's funding for FY05 is $12.2M, with expected FY06 funding of $12.6M.

Facilities Assessment / Issues:
The Human Resources & Occupational Medicine Division (exclusive of the Occupational Medicine portion) and the Diversity Office will be relocating to the new Research Support Building in FY07.

7.10 COMMUNITY EDUCATION GOVERNMENT & PUBLIC AFFAIRS DIRECTORATE (CEGPA)

CEGPA is composed of the Community Relations Office (PA-03), the Educational Programs (PA-02), the Media & Communications (PA-04), the Museum Staff (PA-01), and Production Services (PG). In addition, there is a directorate staff (PA).

Mission: CEGPA is committed to assist the Laboratory to be a good neighbor, community asset, and a valued employer by forming and strengthening mutually beneficial relationships and fostering trust between the Laboratory and its internal and external stakeholders, including their values, priorities, and concerns into the activities conducted and decisions made at Brookhaven National Laboratory. CEGPA communicates the scientific, technological and environmental, safety and health goals of the Laboratory to local and world communities. CEGPA advances the understanding of science and the Laboratory's work through education programs and community outreach, thereby serving as an educational resource and valuable asset to the local and national community. The mission of the educational programs encompasses several aspects: it enriches the training of future scientists and engineers; provides educational and career pathways in mathematics, science, and engineering for a diverse population of students in undergraduate and pre-college institutions; increases science literacy in schools; and supports and enhances teacher preparation. CEGPA provides the services needed to visually communicate information on the Lab's priority projects, accomplishments, and major events.

Funding: The directorate's funding for FY 05 is $5.4M, with an expected funding for FY 06 of $5.6M.

Facilities Assessment / Issues: Most buildings are 60-year-old wood frame (B/130, 134,197) office buildings that need replacing. Building 438, the Science Education Center, is adequate for the current programs. However, a small addition would allow future consolidation and expansion of the educational programs sponsored by the DOE and the Laboratory. Building 935 currently serves as the Science Museum for educational programs, but lacks workspace and office space for the Science Museum staff. Building 493, built in 1963 as an Animal Quarantine facility for the Medical Department, houses the BNL Video Group which needs more modern facilities.

The Research Support Center Phase I will provide up-to-date office space for the CEGPA staff. The staff is currently housed in former Camp Upton era Buildings 130, 134, 197, 129. The new building will allow them to vacate these old facilities. Building 197 will continue to house production services (quick copy and printing) until Research Support Center Phase II & III are constructed.

7.11 FINANCE DIRECTORATE

The Finance Directorate is composed of two divisions and one office: the Fiscal Services Division (FO), the Business Systems Division (BD) and the Budget Office (BU). In addition, there is directorate staff (DI).

Mission: The mission of the Finance Directorate is to innovatively manage BNL's financial business processes in support of world-class research. In order to accomplish this mission effectively, it provides the resources necessary to carry out day-to-day budget, financial, travel, and business systems operations, as well as to proactively recommend the re-engineering and/or improvement to financial business processes and systems within the BNL community.

Funding: The Directorate's funding for FY '05 is $10.5M, with an expected funding of $10.8M in FY '06.

Facilities Assessment / Issues: The facilities occupied by the DI are office buildings (B/460, 134 & 1005S), some of which will need refurbishment if replacement projects for the WWII era building are not to be forthcoming. The Research Support Center Phase I Building, scheduled to be completed in FY 07, will provide modern up to date space for the Business Systems Divisions.

7.12 DEPUTY DIRECTOR FOR OPERATIONS

The BNL Deputy Director for Operations (DDO) Directorate is composed of two divisions and one office: the Environmental Restoration Division (ER), the Procurement & Property Management Division (PR) and the Counterintelligence Office (CI). BNL's Deputy Director for Operations has the overall responsibility for overseeing the Facilities & Operations Directorate and the Environmental Safety Health & Quality Directorate. In addition the DDO has responsibility for the Brookhaven Medical Reactor project (RO), which will shortly transfer to the Environmental Safety Health & Quality Directorate and a small directorate staff (DE).

Mission: The mission of the Procurement and Property Management Division is to provide internal customers with timely, cost effective procurement and property management services integrated with and supporting the Laboratory's science, technology and cleanup missions in accordance with the prime contract and customer expectations.

The mission of the Environmental Restoration Division is to manage the cleanup of known contaminated areas and investigate and cleanup, when necessary any potentially contaminated areas. Their goal is to protect human health and the environment.

The purpose of the Counterintelligence Office is to deter and neutralize foreign industrial intelligence activities in the U.S. directed at or involving DOE programs, facilities, technology, personnel, unclassified sensitive information, proprietary information, and classified matter.

Funding: The funding for the Deputy Director's Office and the Counterintelligence Office for FY05 is approximately $2.0M, with the funding for FY06 to be approximately $2.0M. The Procurement and Property Management Division funding for FY05 is approximately $6.0M, with expected funding level for FY06 to be $6.1M.

Facilities Assessment / Issues: Most of the buildings occupied by the directorate are of the Camp Upton era. Since the costs for repair and maintenance are high, most of these buildings need to be replaced. Due to limited line item funding, the backlog for replacement/refurbishment of these facilities is expected to increase significantly.

7.13 FACILITIES AND OPERATIONS

The Facilities & Operations Directorate is composed of five divisions: the Plant Engineering Division (EP), the Safeguards & Security Division (SE), the Central Fabrication Services Division (SC), the Emergency Services Division (EM), and the Staff Services Division (SS). In addition there are directorate administrative and support staff (DF).

Mission: The Directorate supports the science and technology, and environmental restoration missions of the Laboratory by providing a safe, environmentally sound, and reliable infrastructure.

The Plant Engineering Division (PE) provides craft maintenance and operations services to maintain the physical plant of Brookhaven National Laboratory. Building craft services includes electricians, HVAC mechanics, insulation workers, metal workers, plumbers, steam fitters, carpenters, and cabinet makers. Site craft services include heavy equipment operators, riggers, drivers, laborers and building and grounds utility workers. PE is also responsible for custodial services. Our utilities division includes tower line workers, and utility plant operators. The Engineering and Construction Services Division provides engineering and project management services for construction projects and operations support.

The Central Fabrication Services Division manufactures mechanical components and assemblies in support of the science and operations mission with focus on internal customers, safety, quality, the environment and cost.

The Emergency Services Division provides planning, preparedness, assessment, engineering and response services for all types of non-security related emergencies. The Division develops policies and programs for fire safety and fire risk management; provides emergency services for fire suppression, emergency medical services, hazardous material incidents, rescue, salvage, and property protection. It also maintains the mechanical components of certain fire safety systems.

The Staff Services Division provides support services such as conference services, mail services, food services, housing, and transportation services to departments, divisions, guests, users, and visiting researchers.

The Security Division protects DOE assets, classified matter, sensitive information and property against theft, diversion, or destruction; to prevent the sabotage of programs that could result in significant scientific or financial impact; to prevent the malevolent release of hazardous materials including radiological, chemical, and infectious agents or other criminal acts that would endanger employees, the public and the environment.

Funding: The Directorate's operating/direct funding for FY05 is $69.2M, with expected funding level for FY06 to be approximately $73.1M

Facilities Assessment / Issues: Most of the buildings occupied by the Facilities & Operations Directorate are World War II era and are in fair to poor condition. Out-year projects, currently beyond the ten-year planning horizon due to budget constraints, would replace these structures.

The costs of maintenance, repair, and capital renewal are high. Site-wide utility systems have been a high priority for maintenance and capital renewal, and the Laboratory has received good support and funding from DOE-SLI. There are, however, on-going issues such as expansion of the chilled-water system and facilities, upgrade of the remaining electrical distribution system, etc.

Energy Management initiatives have been very successful at BNL. Considering the rising costs for electric and gas supplies, the Laboratory needs to replace old outdated buildings with energy efficient modern facilities. The backlog continues to grow and will grow faster as the facilities continue to deteriorate over time.

In some cases facility conditions hinder Safeguards & Security Division's ability to perform their mission. Several projects and upgrades must continue and/or receive funding so the Division can protect the Laboratory's assets in the most efficient and effective manner possible.

BNL is currently performing a major assessment and upgrade of the Emergency Management Program. One key facility is the Emergency Operations Facility, located in the Building 599 (Firehouse). The facility is not adequate for worst-case storms/natural events, to protect from external air-borne releases, and the space is too small for the staff during significant events. Due to the size of apparatus needed to protect the Laboratory during potential emergency events the current fire apparatus floor is too small. A new addition designed to the requirements of a Post 9-11 Emergency Operations Center will be proposed to meet the anticipated needs of BNL during an emergency.

7.14 ESH & QUALITY DIRECTORATE

The Environmental Safety Health & Quality (ESH&Q) Directorate is composed of three divisions and one office: the Environmental & Waste Management Services Division (WM); the Radiological Control Division (RP); the Safety & Health Services Division (HP); and the Quality Management Office (QA) and services. In addition, there is a directorate staff (DH and DHADMIN).

Mission: To serve the environmental, safety, health, and quality needs of our internal customers in an effective, efficient manner, and to meet or exceed the expectations of our external customers.

Funding: The Directorate's funding for FY05 is $22.8M with expected funding for FY06 of $23.5M.

Facilities Assessment / Issues: Most of the lab/office buildings occupied by the Directorate, except the Waste Management facility (Buildings 855, 860, 865, and 870), are World War II vintage structures in need of repair or replacement. The staff is dispersed across the site in multiple buildings, resulting in significant inefficiencies. Consolidating the staff in one or two locations would greatly enhance communications among the groups and have a synergistic effect on the Directorate.

Section 8

Environmental Management Assets

ENVIRONMENTAL MANAGEMENT ASSETS

8.1 OVERVIEW

BNL assets are owned by either the DOE Office of Science (DOE-SC) or the DOE Office of Environmental Management (DOE-EM). Table 8.1 shows those assets owned by EM. This section covers the DOE-EM assets which can be categorized as follows:

- Active groundwater treatment plants. These assets are active building and OSF assets which are covered in the Long Term Response Action (LTRA) plan.
- Groundwater monitoring wells. These assets are active OSF assets which are covered in the LTRA plan
- Decontamination and decommissioning (D&D) projects. These are excess assets (buildings and OSF). They cover work relating to the former Hazardous Waste Management Facility (HWMF) that will be completed in FY05. Work relating to the former reactor complexes, High Flux Beam Reactor (HFBR) and Brookhaven Graphite Research Reactor (BGRR) is continuing and is discussed later in this section.

TABLE 8-1 EM Assets

ID	Facility Name	Year Built	Transfer to SC in 2010*
GROUNDWATER TREATMENT PLANTS			
0516	Ground Water Pump Station (Middle Road)	2001	Y
0517	Ground Water Treatment Facility	2001	Y
0518	Ground Water Treatment Facility	1997	Y
0519	G-round Water Pumping Station	1997	Y
0521	Air Sparge / Soil Vapor Extraction System	1994	Y
0539	WSB Ground Water Recovery Unit	2002	Y
0598	Ground Water Treatment Plant	1998	Y
0645	Well Control House	1997	Y
0670	Sr-90 Pilot Ground Water Treatment Facility	2003	Y
2360	OER Monitoring Wells	1995	Y
2395	OER Pump & Treat Con (Off Site @ I.P.)	1998	Y
2410	S. Boundary Pump & Treat Sys.(OU III)	2002	Y
2415	Middle Road Groundwater Pump/treat	2002	Y
2420	Western South Boundary Treatment Sys(539)	2002	Y
2425	VOC Treatment System (B/96)	2002	Y
2430	Sr-90 Treatment System (B/670)	2003	Y
7133030231	Treatment Plants	1965	Y
OS-1	Industrial Park Treatment System	2003	Y
OS-3	LIPA Vault	2003	Y
OS-4	Airport Treatment System	2003	Y
OS-5	North Street Treatment System	2003	Y
OS-5E	North Street East Treatment System	2003	Y
OS-6	OU VI - (EDB) Plume Treatment System	2003	Y
BGRR RELATED ASSETS			
0701	BGRR Project Offices	1949	Y
0707A	Pump House	1949	Y
0707B	Water Treatment House	1965	Y

ID	Facility Name	Year Built	Transfer to SC in 2010*
0708	Instrument House/Ducts(DEC)	1949	D
0709	Canal House (DEC)	1949	D
ST0702	BGRR (B/701)	1949	Y
HFBR RELATED ASSETS			
0704	Fan House	1949	Y
0750	High Flux Beam Reactor	1964	Y
ST0707	HFBR Cooling Tower (Basin)	1949	Y
1090-HFBR	HFBR Vessel and Assoc. Systems	1964	Y
6250750	High Flux Beam Reactor	1964	Y
0715	Stack Monitoring Station	1979	Y
0751	Cold Neutron Facility	1970	Y
2405-STACKDRAIN	Liquid Waste Piping System (ST0705)	2001	Y
ST0705	Reactor Stack	1949	Y
ST0623	Nitrogen Tank (B/750)	1987	Y
HAZARDOUS WASTE MANAGEMENT FACILITY ASSETS			
2180	Masonry Pits	1953	D
409030166	Storage Tank 3-Rad Slurry-2140	1961	D
409030163	Pits Waste Storage-2170	1957	D
2190	Pit Waste Disposal 2	1956	D
2160	Pits Waste Disposal 1	1957	D
2150	Pit Liners Waste Disposal	1959	D
2120	Gas Cylinders Disposal	1963	D

* Y = Yes, expected to transfer to SC; D = Expected to be demolished prior to 2010

8.2 LONG TERM STEWARDSHIP

The DOE-EM will complete the clean-up mission at BNL in FY 2009. As mission elements are complete, the DOE-EM would like to turn over responsibility for managing them to the DOE-SC under the LTRA program.

The DOE's policy is that transfer of LTRA responsibilities can occur only after the site's landlord (for Brookhaven it is the Office of Science, SC) and the EM agree that the EM's mission at the site is completed, and that technical planning has established an LTRA operating baseline, describing the scope and operating costs for future LTRA work. According to DOE guidance "*EM Completion: Transitioning LTRA Responsibilities*", as part of the transition process, EM managers need to ensure that (1) the environmental condition of the facilities is clearly established and documented, (2) the receiving PSO is sufficiently informed of the specific operation, maintenance or surveillance requirements for all of LTRA, and (3) the PSO has adequate time to incorporate associated out-year resource requirements into the future budget requests so the necessary resources are in place at the time of transfer.

As specified in DOE Manual 413.3-1, *Project Management for Acquisition of Capital Assets*, transition and closeout is the progression of a project from implementation to turnover for operations. For environmental restoration projects, initial operating capability may be defined as the transition to LTRA. This occurs at Critical Decision-4 for project closeout and transition.

Therefore, transition and CD-4 activities have been included in the Brookhaven Environmental Management Completion Project (BEMCP) EM Baseline. This transition period will take place in FY04 and FY05 for the Soil and Water Remediation PBS though EM will retain management and budget responsibility of the Soil and Water PBS though the end of FY 2009 and FY 2010 respectively. The CD-4 package for this PBS will be prepared during the summer of FY 2005 and be provided to the Acquisition Executive (EM-1) (for information only) in advance of the complete CD-4 package for the BEMCP in FY 2009. The responsibility for LTRA will be transferred to the Office of Science in FY 2010. During this transition period and through FY09, LTRA activities are also performed by the Landlord organization (Environmental Services and Waste Management Division) in anticipation of transfer to SC. This allows for the landlord organization to become experienced in LTRA responsibilities.

The major LTRA activities (by work package) that BNL will perform during this transition period are as follows:

- 181A - LTRA transition activities
- 181B - Site stewardship, information management & reporting
- 181C - Groundwater operations, maintenance & monitoring
- 181D - Soils and landfills surveillance & monitoring
- 181E - Peconic River surveillance & monitoring – FY06

A brief narrative describing the scope of each of these activities follows.

8.2.1 Work Breakdown Structure (WBS) Scope Description

8.2.1.1 LTRA Transition Activities – Work Package 181A

All LTRA transition activities are complete by the end of FY05 with the exception of BSA Contract closeout. This contract closeout activity is managed under this WP 181.

8.2.1.2 Site Stewardship, Information Management & Reporting – Work Package 181B

This activity includes Site Stewardship responsibilities, the Environmental Information Management System (EIMS), and reporting requirements across all activities with LTRA.

8.2.1.3 Groundwater Operations, Maintenance & Monitoring – Work Package 179C

This activity includes operations, maintenance, and monitoring of up to 12 groundwater treatment systems (see the following table which summarizes the treatment systems) and approximately 650 groundwater monitoring wells.

Groundwater operations and maintenance are system specific and include:

- Operations & maintenance
- Petition for shutdown
- Standby
- Petition for Closure

- Treatment system removal & abandonment
- OU III groundwater deletion report

The specific configuration of each groundwater treatment system is described in its respective work packages. A summary of the systems and the basis of the scope and cost estimate is summarized in the following table.

TABLE 8-2 Groundwater Monitoring Systems

Operable Unit System	***Type***	**Contaminants**	***# of pumping wells***	***Pumping Rate (gpm)***	***Recharge Method***	***Basis of Scope & Cost Estimate***
South Boundary	Pump and Treat (Air stripping)	Volatile Organic Compounds (VOC's)	2	700	Recharge basin	6 years of actual operating experience, model estimated duration
South Boundary	Pump and Treat (Air stripping)	VOC's	7	750	Recharge basin	5 years of actual operating experience, model estimated duration
HFBR Pump and Recharge	Pump and Re-circulate with liquid phase carbon	Tritium & VOC's	3	125	Recharge basin	3 years of actual operating experience (currently in standby); model estimated duration
Industrial Park	Recirculation/ In-Well (AS/Carbon)	VOC's	7 recirculation wells	450	Injection wells	3 years of actual operating experience, model estimated duration
Carbon Tetrachloride	Pump and Treat (Carbon)	VOC's	3	80	Storm drain	3 years of actual operating experience, model estimated duration
Building 96	Recirculation Well (AS/Carbon)	VOC's	4 recirculation wells 3	100	Injection wells	2 years of actual operating experience, model estimated duration
Middle Road	Pump and Treat (AS)	VOC's	5	700	Recharge basin	2 years of actual operating experience, model estimated duration
Western South Boundary	Pump and Treat (AS)	VOC's	2	300	Recharge basin	1 year of actual operating experience, model estimated duration
Chemical Holes	Pump and Treat Pilot (ion exchange)	Sr-90	1-3	5-50	Dry wells	5 months of pilot study test data
Industrial Park East	Pump & Treat (liquid phase carbon)	VOC's	2	160	Injection well	Final design
BGRR/ Waste Concentration Facility (WCF)	Pump and Recharge	Sr-90	2	150	?	Conceptual plan
Airport/LIPA	Pump & Treat (liquid phase carbon)	VOC's	8	925	Injection wells	Final Design
North Street East	Pump & Treat (liquid phase carbon)	VOC's	2	300	Injection wells	Final Design
Area of Concern (AOC) 5 1977 Spill	AS/SVE	VOC's	shutdown	shutdown		2003 shutdown petition accepted
Ethylenedibromide (EBD)	Pump and Treat (carbon)	EDB	2	300	Injection wells	Final Design
North Street	Pump and Treat (carbon)	VOC's	2	550	Injection wells	Final Design

8.2.1.4 Soils And Landfill Surveillance & Monitoring – Work Package 181D

This work package includes all the activities associated with the monitoring, maintenance and reporting of the OU I Areas of Concern (AOCs) following FY04. OU I Post Closure activities will include:

- Current, Former, and Interim Landfill and Slit Trench gas monitoring, monthly inspections, maintenance and repair of landfill caps;
- Radiological surveys (sample and analysis) will be conducted of residual radiological contamination to document trends every five years through year 50, for AOCs 1, 6, 10 and 16
- Annual inspection of Ash Pit to ensure ash is not exposed at surface and maintenance and repair of eroded or bare areas;
- Annual ecological monitoring including surface water, sediments and visual inspection at the Wooded Wetland;
- Annual ecological monitoring of the Upland Recharge/Meadow Marsh Area;
- Annual ecological monitoring including surface water monitoring and visual inspection of the Former HWMF Wetland;
- Recharge Basins 24E and 24F will be maintained per the State Pollution Discharge Elimination System
- Preparation deletion report for OU I and AOCs 10 and 16 in OU II.

The Current Landfill was capped in 1996, the Former Landfill and Slit Trench were capped in 1996 and the Interim Landfill was capped in 1997. A single Annual Monitoring Report will be submitted for all landfills. The annual report will present and discuss quarterly groundwater and landfill gas monitoring results and annual Wooded Wetland sampling results. Potential minor repairs, such as erosion, reseeding, animal burrows, etc. are anticipated and budgeted. The sampling frequency and analysis list will be evaluated and recommendations for changes in the monitoring program will be made in the Annual Report.

TABLE 8-3 Ground Water Monitoring Work Packages

Operable Unit System	*Type*	Contaminants	*Best Shutdown*	*Worst Shutdown*	*Most Likely Shutdown*	WP
South Boundary	Pump and Treat Air-Stripping (AS)	VOC	2009	2015	2011	103
South Boundary	Pump and Treat (AS)	VOC	2008	2016	2011	106
HFBR Pump and Recharge	Pump and Re-circulate with liquid phase carbon	Tritium & VOC's	2010	2010	2010 (currently in standby)	140
Industrial Park	Recirculation/ In-Well (AS/Carbon)	VOC	2007	2017	2012	107
Carbon Tetrachloride	Pump and Treat (Carbon)	VOC	2004	2007	2004	113
Building 96	Recirculation Well (AS/Carbon)	VOC	2003	2005	2004	110
Middle Road	Pump and Treat (AS)	VOC	2020	2030	2025	109
Western South Boundary	Pump and Treat (AS)	VOC	2010	2018	2014	114
Chemical Holes	Pump and Treat Pilot (in exchange)	Sr-90	2009	2014	2011	134
Industrial Park East	Pump & Treat (liquid phase carbon)	VOC's	2009	2011	2009	139
BGRR/ Waste Concentration Facility (WCF)	Pump and Recharge	Sr-90	2017	2038	2035	134
Airport/LIPA	Pump & Treat (liquid phase carbon)	VOC's	2013	2020	2014	128
North Street East	Pump & Treat (liquid phase carbon)	VOC's	2010	2018	2014	115
Area of Concern (AOC) 5 1977 Spill	AS/ Soil Vapor Extraction	VOC	2003	2003	2003 shutdown petition under review	
EDB	Pump and Treat (carbon)	EDB	2013	2017	2015	119
North Street	Pump and Treat (carbon)	VOC's	2010	2015	2012	142

8.2.1.5 Peconic River Surveillance and Monitoring – Work Package 181E

This includes all the activities associated with the monitoring and maintenance of OU V following remediation of the Peconic River. The primary components will include surface water, sediments, and groundwater and specific actions include periodic inspection of remediated areas, maintenance and repair of eroded or bare areas, ecological monitoring of restored wetlands, monitoring of required institutional controls, periodic monitoring of

residual radiological contamination to document trends and reporting as part of the site-wide programmatic Five-year Reviews (IAG) following completion of the remedial actions. This activity also includes the preparation of the OU V Post-Closure Review Report and the OU V deletion report. Resources for the Five-year review and annual environmental monitoring reports are captured in 181B.

8.2.2 Cost Plan

The LTRA work scope and cost plan included in the Revision 6 Baseline were modified to reflect the recent DOE and regulator understandings reached for active Sr-90 remediation and increased long-term monitoring of the Peconic River. With the addition of HFBR LTRA and a period of performance through FY70, the LTRA cost plan in this Baseline is now all-inclusive.

8.2.2.1 Funding Profile

The proposed DOE funding ($K), is summarized in Table 8-4.

TABLE 8-4 Projected Funding 2006 - 2009

	FY2006	*FY2007*	*FY2008*	*FY2009*
BGRR	24,037	21,855	718	-0-
HFBR	4,682	18,814	2,470	-0-
LTRA	6,748	6,643	6,761	6,721
NYSDEC	50	150	150	150
Total	35,517	47,462	10,099	6,871

8.2.2.2 Other Key Assumptions

This draft Baseline assumes that BNL will manage the HFBR and BGRR D&D projects. BNL's construction rates, burdens and overheads historically used for the BGRR were applied to all of the work in this draft Baseline. A performance baseline will be developed during the summer of FY05 to better define the costs of this scope.

Appendices

A — M

APPENDIX A
OPERATIONAL FACILITIES

ID	NAME	GSF	AGE	USE	RPV ($)	DM ($)	RIC ($)	CAT
DOE-EM FACILITIES								
0516	Ground Water Pump Station (M.Rd.)	396	3	694	55,224	700	0	MC
0517	Ground Water Treatment Facility	228	3	694	31,796	403	0	MC
0518	Ground Water Treatment Facility	228	7	694	31,796	403	0	MC
0519	Ground Water Pumping Station	277	7	694	38,629	490	0	MC
0521	Air Sparge/Soil Vapor Extraction System	1,814	10	694	252,970	3,207	0	MC
0539	WSB Ground Water Recovery Unit	120	2	694	17,069	212	0	MC
0598	Ground Water Treatment Plant	761	6	591	94,672	1,345	2,403	MC
0645	Well Control House	64	7	694	8,925	113	0	MC
0670	Sr-90 Pilot Ground Water Treatment	1,507	1	694	171,573	2,664	0	MC
DOE-SC FACILITIES								
0030	Brookhaven Center	14,295	70	294	2,866,483	310,237	727,119	MC
0050	Police Headquarters	10,466	63	296	2,141,886	397,025	0	MC
0051	Environmental Restoration	12,377	70	101	2,306,704	181,513	0	MC
0087	Excess Property Warehouse	9,353	64	400	1,424,352	275,884	0	MC
0096	Truck/Utility Storage	5,591	63	400	855,271	115,994	0	MC
0097	Maintenance Management Center	3,755	63	101	1,019,987	66,768	0	MC
0100	Bulk Warehouse	13,947	64	400	1,912,638	24,657	0	MC
0130	Engineering/Safety & Risk Technology	19,649	63	101	3,165,004	281,813	885,701	MC
0134	Plant Engine/Pub.Affairs/Fiscal/Inter.Au	30,593	63	101	5,130,448	308,287	813,923	MC
0153	Cavendish - Men's Residence	18,309	63	300	3,911,647	336,990	0	MC
0170	Compton - Men's Residence	21,570	63	300	4,575,601	300,966	0	MC
0179	Staff Services/EENS/Post Office	15,025	63	101	2,665,414	179,101	4,240,169	MC
0180	Fleming - Men's Residence	17,038	63	300	3,758,282	344,197	0	MC
0185	Human Resources/Diversity Office	12,122	62	101	2,321,355	163,237	5,578,269	MC
0197	NNSD/Graphic Arts/NNDC	53,574	63	101	16,106,591	1,148,511	0	MC
0209	Bulk Warehouse	14,164	62	400	1,692,863	161,595	2,911,674	MC
0210	Gases Warehouse	5,460	59	410	831,750	69,754	1,098,922	MC
0211	Procurement & Property Management	4,928	63	101	1,179,620	40,667	1,013,351	MC
0244	Carpenter/Lock & Paint Shop	11,342	58	605	3,808,934	172,362	1,690,933	MC

ID	NAME	GSF	AGE	USE	RPV ($)	DM ($)	RIC ($)	CAT
0257	Guest House	5,919	61	300	1,336,545	167,654	0	MC
0258	Curie - Women's Residence	12,975	62	300	2,823,583	230,412	0	MC
0304	Apartment Storage	1,278	63	400	196,078	79,990	0	MC
0307	Apartment 11	4,117	63	300	457,811	70,304	0	MC
0321	Equipment Storage	4,741	61	400	753,935	77,709	701,400	MC
0326	Site Maintenance Office	8,150	61	101	1,785,698	140,837	1,197,317	MC
0339	Maintenance Storage	4,408	64	400	700,513	77,121	784,297	MC
0346	Storage	282	58	421	41,264	4,910	319,251	MD
0348	Calibrations	7,595	61	704	2,841,665	297,453	23,983	MC
0349	Apartment 2	4,127	61	300	457,584	76,624	0	MC
0350	Apartment 4	4,144	61	300	459,270	76,654	0	MC
0351	Apartment 6	4,132	61	300	458,077	79,154	0	MC
0356	Solid State Irradiation Facility	4,391	61	765	2,862,924	119,368	13,866	MC
0359	Apartment 5	4,099	61	300	470,280	75,314	0	MC
0360	Apartment 3	4,087	61	300	472,241	82,856	0	MC
0361	Apartment 1	4,263	61	300	471,085	84,427	0	MC
0362	Apartment 22	4,502	61	300	499,546	83,589	0	MC
0363	Coin Laundry	3,216	61	691	681,686	128,585	0	MC
0364	Apartment 40	5,775	40	300	843,904	175,651	0	MC
0365	Apartment 41	5,773	40	300	698,698	164,921	0	MC
0366	Apartment 42	5,773	40	300	698,998	164,618	0	MC
0367	Apartment 43	5,067	40	300	735,773	163,672	0	MC
0368-01	Summer Cottage	1,072	36	300	155,993	12,399	0	MC
0368-02	Summer Cottage	1,072	36	300	155,993	12,399	0	MC
0368-03	Summer Cottage	1,003	36	300	146,014	12,277	0	MC
0368-04	Summer Cottage	1,003	36	300	146,014	12,277	0	MC
0368-05	Summer Cottage	1,085	36	300	157,873	12,422	0	MC
0368-06	Summer Cottage	995	36	300	144,857	12,263	0	MC
0368-07	Summer Cottage	1,003	36	300	146,014	12,277	0	MC
0368-08	Summer Cottage	1,003	36	300	146,014	12,277	0	MC
0368-09	Summer Cottage	1,085	36	300	157,873	12,422	0	MC
0368-10	Summer Cottage	995	36	300	144,857	12,263	0	MC
0368-11	Summer Cottage	1,072	36	300	155,993	12,399	0	MC

ID	NAME	GSF	AGE	USE	RPV ($)	DM ($)	RIC ($)	CAT
0368-12	Summer Cottage	995	36	300	144,857	12,263	0	MC
0368-13	Summer Cottage	995	36	300	144,857	12,263	0	MC
0368-14	Summer Cottage	995	36	300	144,857	12,263	0	MC
0368-15	Summer Cottage	1,072	36	300	155,993	12,399	0	MC
0368-16	Summer Cottage	995	36	300	144,857	12,263	0	MC
0368-17	Summer Cottage	995	36	300	144,857	12,263	0	MC
0368-18	Summer Cottage	995	36	300	144,857	12,263	0	MC
0368-19	Summer Cottage	1,072	36	300	155,993	12,399	0	MC
0368-20	Summer Cottage	1,072	36	300	155,993	12,399	0	MC
0368-21	Summer Cottage	995	36	300	144,857	12,263	0	MC
0368-22	Summer Cottage	995	36	300	144,857	12,263	0	MC
0368-23	Summer Cottage	995	36	300	144,857	12,263	0	MC
0368-24	Summer Cottage	995	36	300	144,857	12,263	0	MC
0368-25	Summer Cottage	995	36	300	144,857	12,263	0	MC
0368-26	Summer Cottage	995	36	300	144,857	12,263	0	MC
0368-27	Summer Cottage	995	36	300	144,857	12,263	0	MC
0368-28	Summer Cottage	995	36	300	144,857	12,263	0	MC
0368-29	Summer Cottage	995	36	300	144,857	12,263	0	MC
0368-30	Summer Cottage	995	36	300	144,857	12,263	0	MC
0370	Child Development Center	1,127	28	234	302,604	2,295	3,559	MC
0371	Brookhaven House	3,213	20	300	497,805	105,680	10,146	MC
0373	Child Care Facility	8,283	13	234	1,603,691	14,644	26,156	MC
0387	Park Shelter	600	34	294	45,000	1,061	1,895	NM
0388	Danish House	4,821	19	300	679,417	8,523	15,223	MC
0389	Environmental Monitoring Station P4	114	57	769	15,898	202	360	MC
0397	Salt Storage Bldg.	4,197	7	400	334,458	7,420	13,253	MC
0405	Building Storage	3,969	42	400	599,834	51,134	0	MC
0406	Site Storage	1,781	43	400	259,012	42,854	328,320	MC
0412	Site Storage	2,031	61	400	323,409	43,086	368,752	MC
0421	Structural Biology	5,980	61	741	1,622,756	115,614	18,883	MC
0422	Building Maintenance Office	16,956	61	605	5,546,764	489,889	3,206,323	MC
0423	Equip/Vehicle Repair	14,285	61	621	3,747,413	244,385	2,450,668	MC
0438	Science Education Center	5,095	13	233	1,421,202	76,198	16,089	MC

ID	NAME	GSF	AGE	USE	RPV ($)	DM ($)	RIC ($)	CAT
0449	Telephone & Data Equipment-Node 1 & 2	1,899	24	642	766,884	265,395	35,997	MC
0452	Utilities Maintenance	31,010	61	601	9,092,141	478,667	5,456,595	MC
0455	Utilities Storage	787	87	400	109,751	1,391	127,926	MD
0461	Gymnasium	13,243	59	295	2,478,999	506,959	6,217,506	MC
0462	Central Shop - Sheet Metal Shop	20,983	59	611	6,775,254	500,699	66,259	MC
0463	Biology	113,546	59	741	44,970,384	11,350,322	1,969,852	MC
0464	DOE-BHSO	11,644	59	101	2,185,009	227,802	8,510,724	MC
0473	Electron Beam Weld	4,894	62	603	2,008,794	355,767	15,454	MC
0475	Intellectual Prop/Energy Science & Tech	24,737	58	101	4,109,485	485,211	9,733,220	MC
0477	Research Library	17,807	59	290	4,146,274	259,813	13,101,563	MC
0478	Swimming Pool	19,441	58	294	5,520,722	36,035	9,740,439	MC
0479	Heavy Machine Shop	33,926	58	611	11,083,610	682,608	532,129	MC
0480	Material Sciences	40,786	58	703	9,276,007	887,648	2,053,791	MC
0481	Sewage Pump House	126	58	694	11,686	10,727	398	MC
0482	Hazardous Storage	3,204	87	410	373,400	5,967	680,776	MC
0486	Machine Shop Storage	304	9	400	31,882	537	960	MC
0488	Berkner Hall	52,681	36	291	14,399,626	1,026,419	1,066,331	MC
0490	Medical Research Center	222,512	46	742	78,496,344	22,064,331	3,211,634	MC
0493	Video Work Area/Physical Training	6,084	41	299	1,421,299	42,597	169,212	MC
0494	BNL Records Holding Facility	8,027	41	401	1,403,199	175,730	125,347	MC
0495	Oil Drum Storage Facility	660	14	410	93,477	1,167	2,084	MC
0496	Storage	6,000	42	400	898,042	10,607	18,946	MC
0496A	Storage	987	58	401	137,641	54,266	3,117	MD
0497	Environmental Monitoring Station	74	10	769	10,320	358	234	MC
0498	Central Shops Cleaning Facility	999	7	611	572,580	1,766	3,155	MC
0510	Physics	201,929	42	101	59,082,983	29,248,371	1,732,639	MC
0515	Information Technology Division	59,239	38	297	16,037,816	5,994,080	527,061	MC
0522	Compressed Natural Gas Fueling Facility	326	3	651	43,116	576	1,029	MC
0526	Energy Efficiency & Conservation	29,159	61	703	10,679,540	497,081	137,076	MC
0528	Electrical Operations / ECS Archive	6,662	61	615	1,503,424	47,512	1,045,384	MC
0535	Instrumentation Division	76,911	40	731	32,191,021	8,263,355	467,865	MC
0537	Telephone Equipment Node 5	240	7	642	35,199	424	758	MC
0555	Chemistry	151,467	38	711	53,017,038	18,417,564	478,293	MC

ID	NAME	GSF	AGE	USE	RPV ($)	DM ($)	RIC ($)	CAT
0560	High Field MRI Lab	4,033	8	742	1,037,041	89,531	12,735	MC
0562	Central Shops Sheet Metal Storage	701	24	401	76,141	1,239	2,214	MC
0563	Influent Measuring	243	7	769	33,887	430	767	MC
0566	Blower Building	1,399	6	694	182,309	2,473	4,418	MC
0569	STP Monitoring Station @MH 192	77	16	769	5,824	136	189	MC
0570	Weapons Range Equip. Storage	212	24	401	29,564	905	669	MC
0571	Storage Shed	48	7	450	6,694	85	152	MD
0573	Hypochlorite Storage Building	180	62	400	25,102	318	568	MC
0575	Sewage Treatment Facility	2,344	37	694	389,136	4,144	7,402	MC
0580	U.V. Disinfection Discharge	514	62	694	176,566	1,212	1,623	MC
0581	Equipment Storage	396	62	400	55,224	32,213	1,250	MD
0589	Storage Shed	60	7	450	8,367	106	189	MD
0590	Environmental Monitoring Station P2	129	10	769	17,990	228	407	MC
0591	Environmental Monitoring Station P9	113	10	769	15,758	427	357	MC
0592	Environmental Monitoring Station P5	120	57	761	16,735	212	379	MC
0593	Environmental Monitoring Station S6	217	57	769	30,262	384	685	MC
0593A	Environmental Monitoring Storage Shed	283	10	769	39,466	500	894	MC
0594	Environmental Monitoring Station P7	114	57	769	15,898	202	360	MC
0595	Environmental Monitoring Station HMn	74	10	769	10,320	131	234	MC
0596	Environmental Monitoring Station HMs	74	10	769	10,320	358	234	MC
0597	Environmental Monitoring Station HQ	60	10	769	8,367	106	189	MC
0599	Fire House	12,148	19	693	2,470,370	322,559	168,360	MC
0600	Chilled Water Facility	12,778	14	694	1,934,480	311,854	15,841,350	MC
0603	69 kV Sub-Switchgear Bldg	4,567	55	694	606,448	107,717	14,421	MC
0610	Central Steam Facility	15,946	55	694	3,264,893	1,284,089	365,353	MC
0614	Well No. 4	519	44	694	72,377	14,153	1,639	MC
0618	Well No. 6	608	39	694	84,788	12,689	1,920	MC
0619	Well No. 7	607	39	694	84,649	1,452	1,917	MC
0624	Water Treatment Facility	5,985	39	694	847,900	71,252	18,899	MC
0628	Liquid Hydrogen Facility	403	39	410	43,786	12,326	1,273	MC
0629	Emergency Power Facility	1,281	36	694	590,462	455,591	4,045	MC
0630	Public Service Station	2,381	38	651	1,163,615	70,557	142,519	MD
0631	AGS 69 kV Sub-Switchgear Bldg	2,427	36	694	317,682	4,745	7,661	MC

ID	NAME	GSF	AGE	USE	RPV ($)	DM ($)	RIC ($)	CAT
0634	Well No. 10	684	25	694	171,209	30,654	2,160	MC
0635	Well No. 11	680	22	694	170,651	15,600	2,147	MC
0636	Fuel Pump House	1,415	22	694	190,782	2,502	4,468	MC
0637	Well No. 12	680	19	694	172,415	15,600	2,147	MC
0638	RHIC 69kV Switchgear	1,857	6	694	233,585	3,283	5,864	MC
0639	Fuel Receiving/Transfer Facility	7,916	8	694	1,159,421	13,995	24,997	MC
0641	Water Filter Building	5,656	18	694	653,359	33,937	17,860	MC
0642	Equip. Storage Water Treatment Facility	202	18	400	20,911	357	638	MC
0646	Air-Stripping & Pump House	1,163	10	599	139,275	2,056	3,672	MC
0649	Site Maintenance	615	29	601	85,764	1,087	1,942	MC
0650T	Construction Group	1,985	14	101	557,198	3,509	6,268	MC
0651	Fuel Off-Loading Facility	2,092	7	591	254,986	3,698	6,606	MC
0652	Manlift Garage/Equip. Storage	2,500	15	450	83,193	4,420	7,894	MC
0654	Well #10-Carbon Filter Bldg.	1,020	12	694	142,243	1,803	3,221	MC
0655	Well #11-Carbon Filter Bldg.	999	12	694	139,649	1,766	3,155	MC
0657	Well #12-Carbon Filter Bldg.	1,020	11	694	141,825	1,803	3,211	MC
0659	Chilled Water Storage Pump House	1,241	8	599	143,018	2,194	3,919	MC
0680	West Gate Booth	96	44	641	78,344	170	150,303	MC
0680A	Visitors Gate Guard Booth	74	44	641	61,368	131	234	MC
0680B	Truck Inspection Booth	17	6	641	14,098	30	54	MC
0680C	Airport Bus Stop	66	32	292	32,319	117	208	NM
0703	Lab/Office Building	84,498	55	791	33,026,653	6,502,640	288,822	MC
0725	National Synchrotron Light Source	155,689	23	785	51,898,028	469,414	573,927	MC
0726	NSLS Mechanical Tech Supply Facility	3,519	22	551	506,616	40,529	11,112	MC
0727	NSLS Mechanical/Magnet Measurement	4,000	22	551	678,044	7,072	12,631	MC
0728M	NSLS Office Building	3,662	25	101	924,649	6,474	11,564	MC
0729	NSLS Source Development Laboratory	8,018	11	721	1,232,200	22,936	25,319	MC
0753	Transmitter Station	128	25	642	17,850	226	404	MC
0754	Emergency Operations Facility	2,121	16	101	3,251,016	3,750	6,698	MC
0801	Isotope Research and Processing	51,056	54	782	29,352,080	90,265	282,669	MC
0802	Fan House	1,282	54	694	301,465	2,645	0	MC
0810	Liquid Waste Transfer	1,087	3	591	111,493	1,922	3,432	MC
0815	EENS Multi-program Laboratory	64,228	43	703	25,613,640	6,911,490	1,392,019	MC

ID	NAME	GSF	AGE	USE	RPV ($)	DM ($)	RIC ($)	CAT
0817	Engineering Support Facility	8,828	9	101	1,875,628	30,355	27,877	MC
0820	ATF / Vacuum Group	29,507	47	703	12,309,430	505,485	93,175	MC
0820B	ATF Storage Facility	726	47	401	79,560	17,040	2,293	MD
0821	Heat Transfer/Fluid Dyn Storage	463	26	401	49,880	819	1,462	MC
0830	Environmental Waste Technical Center	28,946	42	792	11,757,609	2,824,560	583,404	MC
0832	Phoenix Assembly Building	8,180	8	551	1,453,008	25,353	25,830	MC
0835	CAD Warehouse	7,115	42	401	1,120,999	202,688	22,467	MC
0836	Thermal Distribution Research Facility	1,021	20	703	137,709	1,805	3,224	MC
0839	Environmental Monitoring Station	75	10	769	10,459	435	237	MC
0855	WMF-RCRA	27,475	6	591	3,421,989	48,573	86,756	MC
0860	WMF-Operations	12,364	6	101	2,409,780	22,161	39,042	MC
0865	WMF-Reclamation	20,886	6	593	2,875,198	36,925	65,952	MC
0870	WMF-Mixed Waste	6,888	6	593	1,106,932	12,177	21,750	MC
0899	Storage Building	338	55	400	35,623	598	1,067	MD
0901	Radioisotope and Radiotracer C	34,301	55	712	13,244,494	584,023	308,314	MC
0901A	Van De Graaff Building	65,611	36	785	26,735,342	558,980	207,182	MC
0902	Magnet Division	135,745	55	551	38,909,994	9,379,727	428,647	MC
0904	Electricians Work Area	1,769	48	612	648,302	106,914	5,586	MC
0905	Magnet Assembly	28,408	45	551	9,057,285	219,991	89,705	MC
0906	PET Imaging Laboratory	4,805	23	742	1,314,855	189,139	15,173	MC
0907	Heavy Ion Power Supply A	1,944	16	785	268,037	49,760	0	MC
0908	Heavy Ion Power Supply B	660	16	785	76,982	1,167	0	MC
0909	Heavy Ion Beam Tunnel	13,161	19	785	8,075,597	39,024	0	MC
0911	Office/Service Building	100,663	48	101	37,821,863	16,439,598	317,867	MC
0912	AGS Experimental Halls	187,413	46	724	25,961,590	1,548,173	595,483	MC
0912A	Mechanical Equipment Building	5,864	47	785	976,252	15,922	0	MC
0913	AGS Tunnel	47,891	47	785	29,625,334	2,596,113	0	MC
0913A	Fan House A - Northeast	664	47	785	93,935	14,133	0	MC
0913B	Fan House B - North	654	47	785	92,540	13,920	0	MC
0913C	Fan House C - Northwest	1,632	47	785	360,354	86,953	0	MC
0913D	Fan House D - Southwest	662	47	785	93,656	14,090	0	MC
0913E	Fan House E - Southwest	671	47	785	94,911	13,873	0	MC
0913F	Proton House D18	401	20	785	66,807	709	0	MC

ID	NAME	GSF	AGE	USE	RPV ($)	DM ($)	RIC ($)	CAT
0913G	Proton House E18	401	20	785	57,440	709	0	MC
0913H	Proton House F18	401	20	785	57,603	709	0	MC
0913I	Proton House G18	400	20	785	56,885	707	0	MC
0913J	Proton House H18	402	20	785	57,163	711	0	MC
0913K	Proton House I18	401	20	785	57,024	709	0	MC
0913L	Proton House J18	402	20	785	57,163	711	0	MC
0913M	Proton House K18	401	20	785	57,024	709	0	MC
0913N	Proton House L18	401	20	785	56,219	709	0	MC
0913O	Proton House L18A	1,042	14	785	288,130	1,842	0	MC
0913P	Proton House A18	401	20	785	57,024	709	0	MC
0913Q	Proton House B18	401	20	785	57,529	709	0	MC
0913R	Proton House C18	402	20	785	57,163	711	0	MC
0913S	H-10 Equipment House	1,828	10	785	262,278	3,232	0	MC
0913T	Storage	1,075	25	401	166,303	1,901	3,395	MC
0914	Booster Equipment	8,614	46	785	1,459,613	211,657	0	MC
0916	AGS Well 102	404	46	785	56,340	714	0	MC
0918	AGS Warehouse	16,526	46	401	2,199,170	50,830	52,185	MC
0919	G-2 Experiment Group	16,463	42	785	2,611,566	204,305	0	MC
0919A	AGS Crogenics/Target Group	4,876	40	601	781,512	84,598	15,397	MC
0919B	Works Building	8,762	38	601	1,356,729	119,892	27,668	MC
0919C	G-2 Plan-B Refrigerator Room	1,066	37	785	128,590	2,490	0	MC
0919G	G-2 R&D Refrigerator Room	983	14	785	117,699	1,738	0	MC
0919H	PTR Rect.House #1	992	6	785	152,872	75,283	0	MC
0919I	PTR Rect.House #2	527	6	785	61,064	11,436	0	MC
0919J	PTR Rect.House #3	810	6	785	95,565	17,188	0	MC
0920	E-10 Power Building	1,525	33	785	320,358	2,696	0	MC
0921	Exp. Power Supply Bldg. G-2	3,903	41	724	541,056	113,499	12,325	MC
0922	Scientific Assembly	15,238	41	551	2,281,044	35,120	48,118	MC
0923	Electronic Equipment Repair	11,511	40	612	1,795,945	20,350	36,349	MC
0924	RHIC-Magnet Production/Assembly	19,162	36	551	2,699,958	140,365	1,423,721	MC
0925	Works Building	6,814	37	551	998,104	93,749	21,517	MC
0926	Receiving/Warehouse	10,091	36	401	1,391,747	259,739	31,865	MC
0927	N. Experimental Tunnel	1,236	33	785	10,735,619	17,941	0	MC

ID	NAME	GSF	AGE	USE	RPV ($)	DM ($)	RIC ($)	CAT
0928	Siemens MG Power Supply	18,086	35	785	2,753,573	208,975	0	MC
0929	RF Power Supply	13,471	35	785	2,225,177	135,169	0	MC
0930	200 Mev Linac	103,647	35	785	12,333,010	1,775,738	140,000	MC
0931	BLIP	2,066	33	792	290,806	59,626	0	MC
0932	F-10 House Equipment	1,737	33	785	333,638	24,079	0	MC
0933	Site Maintenance Riggers Shop	2,380	45	601	645,465	530	7,515	MC
0933A	Site Maintenance Riggers Supervisor	937	24	101	104,091	-	2,959	MC
0934A	Site Maintenance Riggers Storage	1,179	27	400	133,559	5,252	3,723	MC
0935	Science Museum	5,850	24	293	949,976	16,739	18,473	MC
0936	Equipment Storage	4,049	24	401	565,805	9,784	52,786	MC
0937	Radiation Effects Tunnel	2,799	18	412	1,376,169	4,948	0	MC
0938	Radiation Effects Facility	5,272	18	230	1,819,967	16,072	16,648	MC
0939	C-A / R & D Laboratory	15,842	16	785	7,788,121	28,007	0	MC
0940	On-Line Data Facility	2,420	24	297	274,027	4,278	7,642	MC
0941	Power Supply & Support Building	1,362	14	785	158,181	2,408	0	MC
0942	AGS Booster Tunnel	12,197	17	785	6,965,242	21,563	0	MC
0943	Magnet Test Control Room	1,121	26	297	132,605	1,982	3,540	MC
0944	Magnet Power Supply	984	24	785	114,268	1,740	0	MC
0945	Production Holding	4,068	24	551	651,173	42,356	12,846	MC
0946	Beam Stop Pump House	324	16	785	48,680	573	0	MC
0947	Environmental Monitoring Station	75	10	769	10,459	133	237	MC
0948	Pump House	544	8	785	90,611	962	0	MC
0949	g -2 Tunnel	4,589	8	785	1,559,228	8,113	0	MC
0950	Vacuum Pump House	141	16	785	21,185	249	0	MC
0951	Tower Equipment - T.E.Building	657	52	401	109,004	1,162	2,075	MD
0952	Storage	224	17	401	36,869	396	707	MD
0953	Rectifier House A	654	6	785	98,262	1,156	0	MC
0954	Electrical Utilities	217	10	731	32,604	384	685	MC
0956	NSRL Beam Tunnel	4,829	3	785	3,415,660	8,537	0	MC
0957	NSRL Equipment Building	5,160	3	694	813,926	9,122	16,294	MC
0958	NASA Space Radiation Laboratory	4,554	3	742	2,361,888	8,051	14,380	MC
0959	Environmental Monitoring Station	75	10	769	10,459	587	237	MC
0964	Storage	526	32	401	80,434	930	1,661	MD

ID	NAME	GSF	AGE	USE	RPV ($)	DM ($)	RIC ($)	CAT
0966	Experimental Computer/Electronics	1,197	21	297	143,215	2,419	3,780	MC
0975	Machine Shop/SPS	5,959	36	611	926,286	229,867	18,817	MC
1000	RHIC Tunnel	256,548	23	785	38,494,199	642,629	0	MC
1000P	W-Line Power Supply Building	2,484	23	785	320,493	5,451	0	MC
1002	Brahms Experimental Hall	4,948	23	724	894,096	8,748	0	MC
1002A	Instrumentation/Brahms Service	4,117	23	785	578,998	70,213	0	MC
1002B	2 O'clock Cryo Service Building	3,267	6	785	460,043	6,003	0	MC
1002C	Fast Electronics Hut	504	6	785	57,848	1,194	0	MC
1002D	Brahms Counting House	1,134	6	724	322,439	28,265	3,581	MC
1004A	RHIC RF Support Building	6,270	23	785	1,009,081	67,868	0	MC
1004B	4 O'clock Cryo/Main Power Supply	5,927	10	785	876,817	10,705	0	MC
1005E	East Ejection Power Supply	5,539	23	785	937,199	256,107	0	MC
1005H	RHIC Facility Compress Bldg	12,063	23	785	1,835,900	72,365	260,000	MC
1005P	Cooling Tower No. 7 Pump House	989	6	785	137,920	2,051	0	MC
1005R	Cryogenics Refrigerator Wing	14,459	6	785	2,090,074	279,647	258,000	MC
1005S	Collider Center	40,791	23	101	9,007,277	1,013,862	4,495,014	MC
1006	Star Experimental Hall	16,801	23	724	3,313,353	234,849	0	MC
1006A	Star Service Building	4,489	23	785	650,829	96,400	0	MC
1006B	6 O' Clock Cryo Service Building	3,245	10	785	448,433	5,737	0	MC
1006C	Star Counting House	1,838	8	724	521,868	3,477	5,804	MC
1006D	Office Modulars	1,432	5	101	407,884	2,834	4,279	MC
1007W	West Ejection Power Supply	5,000	23	785	705,018	156,711	0	MC
1008	Phenix Experimental Hall	11,874	23	724	2,829,835	131,430	0	MC
1008A	Phenix Service Building	9,848	23	785	1,487,582	76,582	0	MC
1008B	Service Bldg.	4,007	10	785	564,883	7,084	0	MC
1008C	Phenix Counting House	1,163	7	724	329,265	2,056	3,672	MC
1008E	Office Modular	4,276	5	101	1,056,441	14,759	13,502	MC
1008F	Mixing Building	787	4	785	99,078	1,391	0	MC
1010	Phobos Experimental Hall	8,501	6	724	1,664,020	15,029	0	MC
1010A	10 O'Clock Cryo/Phobos Service	6,539	6	785	948,959	11,787	0	MC
1010B	Phobos Counting House	1,137	6	724	325,044	2,843	3,590	MC
1012	Future Facility/Experimental	8,818	6	724	3,227,341	15,589	0	MC
1012A	12 O'Clock Cryo/Polarimeter Service	6,492	6	785	941,573	11,704	0	MC

ID	NAME	GSF	AGE	USE	RPV ($)	DM ($)	RIC ($)	CAT
1013	Equipment Storage	202	7	401	20,911	357	638	MC
1070	Environmental Monitoring Station	75	10	769	10,459	435	237	MC
1101	CAD Warehouse	2,490	23	401	920,715	4,856	7,863	MC

APPENDIX B
OPERATIONAL EXCESS FACILITIES

All facilities are owned by DOE-SC.

ID	NAME	GROSS	AGE	USE	RPV ($)	DM (4)	RIC ($)	CAT
0120	ESH & Q Office Building	13,402	62	101	2,782,448	146,820	0	MC
0129	Science Museum Staff & NSLS	10,107	62	101	2,393,813	190,468	0	MC
0302	Apartment 28	4,731	58	300	536,146	126,011	0	MD
0303	Apartment 34	5,310	63	300	595,959	97,623	0	MD
0317	Recreation Hall	7,168	63	294	1,581,668	452,325	0	MD
0325	Apartment 7	4,191	61	300	500,473	71,695	0	MD
0327	Apartment 24	3,781	61	300	441,848	70,970	0	MD
0328	Apartment 26	2,481	61	300	293,483	42,201	0	MD
0330	Apartment 8	3,931	61	300	438,118	69,975	0	MD
0331	Apartment 10	4,088	61	300	479,019	76,555	0	MD
0334	Apartment 30	2,565	61	300	301,874	46,131	0	MD
0335	Apartment 36	3,173	61	300	363,955	56,030	0	MD
0355	Contracts & Procurements	10,295	61	101	2,034,594	265,342	3,310,978	MC
0459	Business Systems Division	14,304	59	297	7,091,547	171,562	64,061	MC
0460	Director's Office	17,762	59	101	4,195,824	823,919	13,195,854	MC

APPENDIX C
EXCESS FACILITIES

ID	NAME	GSF	AGE	USE	RPV ($)	DM ($)	CAT
DOE-EM FACILITIES							
0701	BGRR Project Offices	38,641	55	783	5,945,516	810,034	MD
0704	Fan House	9,864	55	784	447,876	0	NM
0708	Instrument House/Ducts(DEC)	613	55	784	20,985	0	NM
0709	Canal House (DEC)	1,228	55	784	514,135	0	NM
0715	Stack Monitoring Station	208	25	769	66,209	0	NM
0750	High Flux Beam Reactor	117,790	40	783	43,139,158	0	MD
0751	Cold Neutron Facility	2,141	34	792	428,374	10,504	MD
0707A	Pumphouse	1,215	55	784	297,199	28,676	NM
0707B	Water Treatment House	262	39	784	75,395	0	NM
DOE-SC FACILITIES							
0086	Stationery Warehouse	11,097	64	400	1,668,016	267,747	NM
0193	Teachers Federal Credit Union	3,027	63	652	983,954	5,881	NM
0491	Medical Research Reactor	11,653	46	783	6,540,647	36,765	MD
0492	Well No. 105	1,243	45	694	328,512	0	NM
0527	Excess Office Space	2,869	61	101	975,806	43,097	NM
0650	Custodial Storage	12,408	45	692	2,805,701	45,058	NM
0811	Waste Concentration Facility	1,906	54	592	255,570	31,967	NM
0934	RHIC Installation Storage	810	27	401	91,110	303	NM
0650A	Storage	1,246	63	401	452,661	0	NM
0933B	RHIC Installation Welding	532	24	611	57,701	0	NM

APPENDIX D
PROJECTS SORTED BY DIRECTORATE

	FUND	ADS_NO	TITLE	TEC ($k)
LABORATORY PROJECTS				
	Line Items Funded			
	LI	AA1D0005	BNL CENTER FOR FUNCTIONAL NANOMATERIALS	81,000
	LI	AA0D0030	RESEARCH SUPPORT CENTER - PH I	18,200
	Line Items Not Funded – Within Planning Period			
	LI	AA1D0017	RENOVATE SCIENCE LABS – PH I	18,000
	LI	AA1D0025	USER RESEARCH CENTER	18,000
	LI	N98D0069	CENTRAL CHILLED WATER - PHASE II	10,000
	LI	AA1D0018	RENOVATE SCIENCE LABS – PH II	18,000
	LI	AA1D0006	RESEARCH SUPPORT CENTER - PH II	18,000
	Line Items Not Funded – Within Planning Period			
	LI	AA1D0019	RENOVATE SCIENCE LABS – PH III	18,000
	LI	AA1D0020	RENOVATE SCIENCE LABS – PH IV	18,000
	LI	AA1D0021	RENOVATE SCIENCE LABS – PH V	18,000
	LI	A92D0127	FP4:FIRE PROTECTION IMPROVEMENTS, PHASE IV	5,000
	LI	A93D0026	FP5:FIRE PROTECTION IMPROVEMENTS, PHASE V	5,000
	LI	A93D0161	HALON SYSTEM REPLACEMENT PROJECT	5,000
	LI	A93D0169	FIBER OPTIC CABLES, SFAS, F/R GROUP	5,000
	LI	N98D0015	ENERGY SCIENCES AND TECHNOLOGY BUILDING	17,900
	LI	N98D0046	CENTRAL STEAM SYS. REHAB. - PHASE I	8,000
	Legacy Environmental Issues - Funded			
	OE	A98D0176	STUDY - REMOVE A&B WASTE LINES B/801-811	8
	OE	AA3D0055	STORAGE TANK CLEANOUT, D & F TANKS, B/801	337
	Legacy Environmental Issues - Not Funded			
	OE	A93D0079	IRON SLUDGE PROCESSING SYSTEM - B/624	250
	OE	A98D0216	OFF-GAS LINE SERVICE STUDY REPLACING 100 M STACK	50
	OE	AA0D0060	NEXT GENERATION EIMS	151
	OE	AA0D0071	CULTURAL RESOURCE EVALUATIONS & CONTEXT DEVELOPMEN	220
	OE	AA0D0078	EVALUATE MERCURY CONTAMINATION IN BLDG WSTE PIPING	350
	OE	AA1D0059	SITE VEGETATION SAMPLING FOR RADIONUCLIDES	120
	OE	AA1D0102	REMOVAL OF ABANDONED FUME HOODS/BLOWERS/DUCTS	60

	FUND	ADS_NO	TITLE	TEC ($k)
	OE	AA1D0103	REMOVAL OF ABANDONED HOT CELLS	300
	OE	AA1D0104	REMOVAL OF ACID OFF-GAS SYSTEM/FILTERS, B/801	45
	OE	AA1D0107	PCB ELECTRIC BALLAST REPLACEMENT - PH I	195
	OE	AA1D0112	STORAGE TANK DISPOSAL, D & F TANKS, B/801	TBD
	OE	AA2D0049	B/802B EVAPORATOR AND TANK REMOVAL	80
	OE	AA2D0052	B/865 UNDERGROUND STORAGE TANK REMOVAL & DISPOSAL	75
	OE	AA2D0055	B/810/811 D-TANKS 1 & 2 AND B/811 EVAPORATOR	500
	OE	AA2D0057	WHITE-TAILED DEER MANAGEMENT	285
	OE	AA2D0069	DISPOSITION OF W. B. IRRADIATION FACILITY - PH I	200
	OE	AA3D0001	REMOVE MERCURY CONTAM B/815/830 WSTE PIPING	50
	OE	AA3D0012	CLEARING WILDLAND SURVIVABLE SPACE TO BLDGS	271
	OE	AA3D0025	REMOVE/REPLACE FIVE OLD UNDERGROUND #2 FUEL TANKS	125
	OE	AA3D0026	REMEDIATE LEAD-CONTAM. SOILS AT CSF STORM OUTFALL	300
	OE	AA3D0044	BEAMSTOP/G-2 GROUNDWATER MONITORING	105
	OE	AA3D0045	CHARACTERIZATION STUDY OF B/811 YARD AND FACILITY	250
	OE	AA3D0046	REMOVE A&B WASTE LINES B/801-811	2,300
	OE	AA4D0009	B/462 HOT SHOP CLEANUP	216
	OE	AA4D0012	B/902 DYNAMITRON D & D	TBD
	OE	AA4D0013	LEAD IN SOIL BENEATH 300,000 GAL WATER TANK ST0049	36
	OE	AA4D0018	B/650/650A DECONTAMINATION AND DEMOLITION	1,500
	OE	AA4D0019	BMRR DECONTAM. AND DECOMMISSIONING TO GREENFIELD	20,000
	OE	AA4D0036	METALLURGY EVALUATION LABS (MEL)	TBD
	OE	AA4D0040	REMOVE COSMOTRON TANKS	TBD
	OE	AA4D0046	EXCESS NUC. MATERIAL MANAGEMENT/DISPOSITION PLAN	3,000
	OE	AA4D0072	B/810/811 SURFACE IMPROVMENT OF D-TANKS #3 & #4	45
	OE	AA4D0087	CHARACTERIZATION OF UNFUNDED LIABILITIES ISSUES	75
	OE	I94D0019	DISCONNECT B/815 OFF-GAS LINE	250
	Site Safety Issues - Funded			
	OE	A99D0020	STRUCTURAL MODIFICATIONS OF WOOD BUILDINGS PH II	364
	GPP	AA4D0005	CROSSWALK LIGHTING	63
	OE	AA4D0051	EMERGENCY MANAGEMENT PROGRAM IMPROVEMENT INITIATIVE	414
	Site Safety Issues - Not Funded			
	OE	A92D0038	SITEWIDE FIRE PROTECTIONS SYSTEMS COMPLIANCE STUDY	182
	GPP	A92D0130	ASBESTOS ABATEMENT B/488	700

	FUND	ADS_NO	TITLE	TEC ($k)
	GPP	A93D0168	REPLACEMENT OF SITE FIRE ALARM SYSTEM COMPUTERS	1,200
	OE	A93D0261	FIRE DOOR UPGRADES, VAR BUILDINGS	90
	OE	A95D0008	HIGH FLAME SPREAD MATERIALS STUDY	120
	OE	A97D0040	WORKER SAFETY ENHANCEMENT INITIATIVE	250
	OE	A98D0078	GUTTER SCREENS FOR FRAME BUILDINGS	50
	GPP	A98D0188	CONSTRUCT ELEVATOR ROOM FIRE-RATED ENCLOSURES	50
	OE	AA0D0062	OXYGEN DEFICIENCY MONITORING, MECHANICAL ROOMS	50
	OE	AA1D0003	REPLACE VARIOUS FIRE ALARM PANELS - SITE WIDE	1,650
	OE	AA1D0064	ADDITIONAL EVACUATION EXITS MEDELL & ASTON COTTAGE	100
	GPP	AA1D0106	BNL SITE-WIDE EYEWASH AND SAFETY SHOWER UPGRADE	220
	GPP	AA1D0115	PRINCETON/UPTON INTERSECTION AND SIGNAL IMPROVEMENTS	750
	OE	AA1D0116	SAFETY IMPROVEMENTS TO REDUCE OCCUPATIONAL INJURY	70
	OE	AA1D0118	EAST GATE EMERGENCY EVACUATION ROUTE	63
	OE	AA1D0128	THERMOPLASTIC ROAD MARKINGS SITE WIDE	50
	GPP	AA1D0129	IMPROVEMENTS TO ROADWAY ADJACENT TO B/911 & B/912	60
	OE	AA1D0130	REPLACE FIRE ALARM PANELS, B/515	125
	OE	AA2D0066	FALL PROTECTION/ROOF ANCHORS FOR PM, PHASE IV	50
	OE	AA2D0074	HEAT DETECTOR REPLACEMENT PROJECT SITE-WIDE	1,500
	OE	AA3D0028	BNL NUCLEAR STRATEGIC PLAN	365
	OE	AA3D0029	ELECTRICAL DISTRIBUTION PANEL LABELING	1,525
	OE	AA4D0070	CORRECTION OF OSHA DEFICIENCIES	2,816
	OE	AA4D0094	REPLACE FIRE ALARM PANEL B/921	42
	OE	AA4D0095	REPLACE FIRE ALARM PANEL B/555	116
	OE	AA4D0096	REPLACE FIRE ALARM PANEL B/130/134	65
	OE	AA5D0004	NPFA 70E ARC FLASH HAZARD RISK ANALYSIS	350
	OE	B95D0001	LIFE SAFETY TRAINING COURSE (SITE WIDE)	25
	GPP	I94D0028	ROOF ICE SLIDE HAZARD REDUCTION	100
	OE	P95D0004	RETROFIT 480V BREAKERS W/SOLID STATE TRIP DEVICES	700
	Site Security Issues – Not Funded			
	GPP	A97D0012	VISITORS CENTER	2,100
	GPP	A98D0174	NEW TRAFFIC LIGHTS AT MAIN GATE	120
	GPP	AA0D0038	HAZARDOUS MATERIAL PROTECTION-SECURITY IMPROVE PH-1	150
	GPP	AA0D0039	HAZARDOUS MATERIAL PROTECTION SECURITY IMPROVE- PH II	250
	GPP	AA2D0009	SECURITY SYSTEM IMPROVEMENTS SITE WIDE	243

	FUND	ADS_NO	TITLE	TEC ($k)
	GPP	AA2D0085	SECURITY IMPROVEMENTS B/449	30
	GPP	AA4D0047	SECURITY IMPROVEMENTS TO WATER SYSTEM	150
	GPP	AA4D0067	VEHICLE CONTROL SYSTEM	TBD
	GPP	AA4D0068	LICENSE PLATE READERS FOR THE GATES	TBD
	Utility / General Infrastructure System Needs - Funded			
	GPP	AA2D0008	MODIFICATIONS FOR ADA COMPLIANCE, PHASE III	198
	GPP	AA2D0065	OPACITY MONITORING EQUIPMENT FOR BOILER 1A & 5	250
	GPP	AA2D0084	C-A AREA STORM WATER IMPROVEMENTS	1,624
	GPP	AA3D0049	SATELLITE CHILLERS FOR THE CCWF	1,825
	GPP	AA3D0052	BACKFLOW PREVENTORS - B/463	82
	GPP	AA4D0093	BACKFLOW PREVENTORS - B/463 REMAINING	250
	GPP	AA4D0097	UPGRADE 480V BREAKERS W/SS TRIP DEVICE FY05	100
	Utility / General Infrastructure System Needs - Not Funded			
	GPP	A93D0005	REMOVE FLAMMABLE FOAM DUCT INSULATION – SITE WIDE	500
	GPP	A93D0128	CONNECT BOILER BLOWDOWN TO SANITARY	65
	GPP	A96D0012	UPGRADE LINE DRIVERS FOR SITE FIRE ALARM SYSTEM	100
	GPP	A98D0016	BACK-PRESSURE CONTROL ENHANCEMENTS(701 PIPING MOD)	60
	OE	A98D0021	UPDATE CONTROL SYSTEM INTERFACE/GRAPHICS	58
	GPP	A98D0024	SITE EMERGENCY GENERATOR RESISTIVE LOADBANK	390
	GPP	A98D0029	TRANSFER ROOF DRAINS FROM SANITARY TO STORM	600
	GPP	A98D0030	REPLACE TRANSITE WATER MAINS@BROOKHAVEN AVE & PRIN	500
	OE	A98D0051	DOMESTIC WATER BUILDING ISOLATION VALVES, VARIOUS	50
	GPP	A98D0089	EXTEND STEAM MAIN TO B/422 & B/244	150
	OE	A98D0091	CONVERT BOILER 1A TO NATURAL GAS	60
	OE	A98D0092	BOILER 1A RE-TUBE THE FRONT HALF	120
	GPP	A99D0003	WATER MAIN REPLACEMENT-TECHNOLOGY STREET	912
	GPP	A99D0006	SANITARY MAIN RADIATION/PH LEVEL DETECTION SYSTEMS	700
	GPP	A99D0061	CONNECTION OF WELL 102 TO SUPPLY SYSTEM	300
	GPP	AA1D0045	BACKFLOW PREVENTORS - BACKLOG	4,000
	OE	AA1D0082	AIR HANDLER REPLACEMENTS	5,410
	GPP	AA1D0084	FIRE BARRIER UPGRADE	100
	GPP	AA1D0085	STEAM SYSTEM IMPROVEMENTS SITE WIDE	2,550
	OE	AA1D0125	REPLACE EXISTING SIDEWALKS AND PROVIDE ADA ACCESS	250
	OE	AA1D0137	REPLACE HYDRAULIC ELEVATORS, SITE-WIDE	4,175

	FUND	ADS_NO	TITLE	TEC ($k)
	GPP	AA2D0059	B/911 COOLING WATER SUPPLY	100
	GPP	AA2D0071	INCREASE CCWF COOLING TOWER CAPACITY	1,800
	GPP	AA2D0082	REPLACE SOUTH PASSENGER ELEVATOR, B/725	275
	GPP	AA3D0051	STEAM SYSTEM IMPROVEMENTS MH4	250
	GPP	AA4D0035	INSTALL BOLLARDS AROUND PROPANE FILL STATIONS	66
	GPP	AA4D0053	CHILLED WATER MODES B/463 & B/510	70
	GPP	AA4D0065	FIBER CABLE WWTF: UPDATE ETHERNET CONTROL SYS	100
	OE	AA4D0092	STEAM SYSTEM IMPROVEMENTS MH44	250
	GPP	B94D0028	SITE FIRE ALARM SYSTEM: FIBER OPTIC CABLE UPGRADES	525
	OE	N98D0023	REPLACE O/H ELECTRIC LINES W/UG CABLE HARVARD	175
	OE	N98D0025	REPLACE SKIRTING & FOUNDATION VENTS, VAR. BUILDINGS	50
	OE	N98D0035	B/510 REPLACE CHILLED WATER VALVES MAINS	10
	OE	N98D0049	PAINT 300,000 GAL. ELEVATED WATER TANK B/49	389
	GPP	N98D0064	APT. AREA POTABLE WATER PIPING REPLACEMENT	875
	OE	N98D0111	NEW ALTERNATE LINE & 69 KV BREAKERS	4,000
	OE	N98D0115	CCWF - AIR COMPRESSOR DRIERS	50
	GPP	N98D0116	CCWF TOWER BLOWDOWN MODIFICATION	50
	GPP	N98D0121	B/490 ITF HEAT EXCHANGER - CHILLER BY-PASS	10
	OE	N98D0123	ELIMINATE INDIRECT ADDRESSING IN CCWF ALLEN BRADLEY	20
	GPP	P95D0002	RUPTURE DISK RELIEF VALVES- R-11 CHILLERS	126
DEPUTY DIRECTOR FOR SCIENCE & TECHNOLOGY				
	Information Technology Division - Funded			
	OE	AA0D0044	REPLACEMENT AIR CONDITIONER FOR B/449	130
	GPP	AA2D0044	BCF MODIFICATIONS FOR RHIC ROBOTS, B/510	100
	GPP	AA3D0014	UPGRADE A/C & PDU, BCF B/515	228
	GPP	AA4D0056	RECONFIGURE WALLS BCF, B/515	60
	GPP	AA4D0071	UPGRADE BCF FIRE DETECTION SYS, B/515	65
	Information Technology Division - Not Funded			
	GPP	AA1D0032	BROOKHAVEN COMPUTING FACILITY EXPAND, B/515	3,500
	GPP	AA2D0064	B/515 CARPET FLOORING	120
	GPP	AA5D0001	SITE-PREP RIKEN II, BNL SUPER COMPUTER PHASE II	80
	Information Services Division - Not Funded			
	GPP	A96D0039	ARCHIVE RECORDS STORAGE FIRE PROT. UPGRADE-B/494	7

	FUND	ADS_NO	TITLE	TEC ($k)
	GPP	A99D0060	RESEARCH LIBRARY ADDITION, B/477	800
	GPP	N98D0041	RECORDS HOLDING AREA UPGRADE	150
ALD - HIGH ENERGY AND NUCLEAR PHYSICS				
	Collider-Accelerator Department - Funded			
	GPP	AA0D0007	C-A TRITIATED COOLING WATER SYSTEM MODIFICATIONS	1,800
	OE	AA0D0054	COMPREHENSIVE RE-VEGETATION WITHIN THE RHIC AREA	68
	GPP	AA3D0035	REPAIR\REPLACE ROOF, B/912 EEA&EEBA	2,000
	GPP	AA4D0003	B/912 POWER AND COOLING WATER UPGRADES	900
	Collider-Accelerator Department - Not Funded			
	GPP	A97D0002	TTB POWER SUPPLY HOUSES FIRE SUPPRESSION SYSTEM	300
	GPP	A98D0031	ALTERNATE POWER SOURCE FOR HELIUM RECOVERY	100
	GPP	A98D0046	REPLACE OF NEW A/C EQUIPMENT (5) AGS FAN HOUSES	425
	GPP	A98D0167	AGS MMPS LOSS PREVENTION AND CONTAINMENT	550
	GPP	A98D0168	ELIMINATION OF WATER TREATMENT CHEMICALS AT AGS	500
	OE	A98D0206	REPLACE 13.8 KV FEEDER 919-1	360
	OE	A99D0068	AGS RING ROOF REPAIRS	275
	GPP	AA0D0008	ADDITION TO B/911	2,000
	GPP	AA0D0075	STAR DETECTOR ELECTRONICS LAB	250
	OE	AA1D0080	REPLACEMENT OF PCB CAPACITORS IN B/930	500
	GPP	AA1D0086	ADDITIONAL VEHICLE PARKING FOR B/911	85
	GPP	AA1D0087	EXTENSION OF B/1101 FIRE SPRINKLER SYSTEM	65
	OE	AA1D0088	SOIL STABILIZATION AT RHIC - PHASE I	450
	GPP	AA1D0111	ADDITION OF ODH FAN, RHIC REFRIG FACILITY B/1005R	175
	GPP	AA2D0047	RESTORE REQUIRED AGS FIRE PROT. FLOW CAPACITY	TBD
	OE	AA2D0060	REPLACEMENT OF COOLING TOWER #4 AT AGS	225
	GPP	AA3D0027	COLLIDER ACCELERATOR STEEL YARD PAVING	700
	GPP	AA3D0038	PASSIVE GROUNDWATER PROTECTION AT AGS, RSVP EXP.	2,072
	OE	AA4D0014	INVEST./REM. LEAD IN SOILS IN C-A YARD BEHIND B/811	TBD
	GPP	AA4D0084	RHIC PAVING - PHOENIX GAS AREA & B/1008	40
	GPP	N98D0032	B/936 INSULATE & HEAT	40
	OE	N98D0072	B/912 REPLACE OIL SWITCHES WITH AIR SWITCHES	250
	OE	N98D0081	B/1005 ELEVATOR REPLACEMENT	100
	GPP	N98D0086	NEW TRANSFORMER #9	1,800

	FUND	ADS_NO	TITLE	TEC ($k)
	GPP	N98D0107	13.8 KV DISTRIBUTION SYSTEM REINFORCEMENT - PH I	375
	GPP	N98D0108	13.8 KV DISTRIBUTION SYSTEM REINFORCEMENT - PH II	1,000
	GPP	N98D0109	13.8 KV DISTRIBUTION SYSTEM REINFORCEMENT - PH III	750
	GPP	P98D0010	UPGR AGS PWR DIST SYS FAN HOUSE A	200
	GPP	P98D0018	POWER MONITORING SYSTEM	375
	GPP	P98D0026	UPGR AGS PWR DIST SYS FAN HOUSE B	200
	GPP	P98D0027	UPGR AGS PWR DIST SYS FAN HOUSE C,D,E	800
	GPP	P98D0028	UPGR AGS PWR DIST SYS N. TARGET BLDG	200
	GPP	P98D0029	UPGR AGS PWR DIST SYS S. TARGET BLDG	200
	GPP	X92D0108	SHIELD UPGRADE FOR AGS RING HATCHES	200
	GPP	X92D0144	CABLE TRAY UPGRADE C-A DEPT	400
	GPP	X92D0145	FIRE PROTECTION FOR WOODEN COOLING TOWERS	400
	Magnet Division - Not Funded			
	GPP	AA1D0131	CRYOGEN-ENERGY SAVING B/902 CRYO OPERATIONS	350
	Instrumentation Division - Not Funded			
	GPP	A98D0082	GAS DETECTOR CLEAN ROOM UPGRADE	80
	OE	A98D0084	B/535 AIR-CONDITIONING FOR RM. B-148	25
	GPP	A98D0085	CEILING AND LIGHT REPLACEMENT IN B/535B	150
	GPP	A98D0086	NEW TILE FLOOR THROUGHOUT B/535	100
	GPP	A99D0056	DUCTLESS A/C B/535 ROOMS B-108A,B-108B,B-113,B-113A	45
	GPP	A99D0057	TEMP/HUMIDITY CONTROL MODS, PC LAB B/535	130
	GPP	A99D0059	RELOCATE EXTERNAL AIR INTAKE, B/535	50
	GPP	A99D0080	NEUTRON DETECTOR TEST FACILITY	500
	Physics Department - Funded			
	GPP	AA3D0041	HIGH BAY UPGRADE, B/510	790
	OE	AA4D0066	ATLAS PHYSICS ANALYSIS CENTER	75
	OE	AA4D0081	REPLACEMENT OF CRITICAL HVAC SYSTEMS, ATF B/820	300
	Physics Department - Not Funded			
	GPP	A98D0052	SPRINKLER & FIRE DETECTION, HIGH BAY B/510	70
	GPP	AA4D0057	REINFORCE B/725-B/535 TUNNEL F/HELIUM RECOVERY	75
	GPP	AA4D0082	UPGRADE OF LABORATORIES W6 AND W8, B/703	617
	GPP	AA4D0083	UPGRADE OF LABS 2-115, 2-116 & 2-117, B/510	TBD
	GPP	AA5D0002	UPGRADE B/510 FREIGHT ELEVATOR	300

	FUND	ADS_NO	TITLE	TEC ($k)
	GPP	P98D0030	YAG LASER MEZZ EXTENTION	150
ALD - BASIC ENERGY SCIENCES				
	Chemistry Department - Funded			
	OE	AA1D0132	AIR HANDLER REPLACEMENTS K-3 & K-6, B/555	508
	Chemistry Department - Not Funded			
	GPP	A93D0097	EXTENSION OF EXHAUST STACKS ON B/555	TBD
	GPP	A93D0108	ENCLOSED STAIRWAYS-BASEMENT B/555, CHEMISTRY	TBD
	GPP	A98D0147	TARGETRY STATION	50
	GPP	A99D0038	EXPANSION OF B/560	500
	OE	AA1D0096	REFURBISH CHEMISTRY DEPT GLASS WASHING LABORATORY	25
	OE	AA2D0075	AIR HANDLER REPLACEMENTS K-7, B/555	250
	OE	AA3D0053	AIR HANDLER REPLACEMENTS AC-1, B/815	250
	OE	AA4D0011	BLDG 555 LAB #117 ALPHA CONTAMINATED HOOD	165
	OE	AA4D0016	BLDG 901 PCB REGULATOR REMOVAL AND DISPOSAL	40
	GPP	AA4D0058	INCREASE CW CAPACITY, B902 JSW CYCLOTRON	100
	OE	AA4D0090	ROOF REPLACEMENT B/555 N/E CORNER & REAR ELEV. RM	210
ALD - LIGHT SOURCES				
	National Synchrotron Light Source Department - Not Funded			
	GPP	A98D0145	SIDEWALK & STREET LIGHTING TO NSLS TRAILER PARK	80
	GPP	AA0D0016	B/725 USER SUPPORT ADDITION - NSLS	2,030
	GPP	AA0D0017	NSLS USER ADDITION B/725	594
	OE	AA1D0056	SMOKE DETECTOR REPLACEMENT, NSLS B/725	250
	GPP	AA4D0048	INSTALL ADDL SMOKE DETECTORS, B/725 X-RAY/PS AREAS	100
	GPP	AA4D0049	INSTALL SPRINKLER FIRE PROTECTION SYSTEM, B/820A	250
	GPP	AA4D0050	REWORK OF CIRCULAR DRIVE, B/725 MAIN ENTRANCE	60
	GPP	AA4D0088	RELOCATE B/725 LIQUID NITROGEN DELIVERY FILL STAT.	45
	GPP	P98D0016	NISUS WIGGLER BLDG	1,600
ALD - LIFE SCIENCES				
	Biology Department - Funded			
	GPP	AA3D0019	GENOMES TO LIFE LABS RENOVATION PHII, B/463	500
	OE	AA3D0054	UPGRADE B/463 HYDRAULIC ELEVATOR	230

	FUND	ADS_NO	TITLE	TEC ($k)
	GPP	AA4D0079	EMERGENCY POWER B/629 (B/463 & B/490)	425
	GPP	AA4D0064	RENOVATE LAB SUITE 164/167, B/463	870
	Biology Department - Not Funded			
	GPP	AA3D0037	REPLACEMENT OF CHEMICAL FUME HOODS, B/463	TBD
	OE	AA1D0066	RENOVATION FOR OFFICE SPACE B/421	25
	OE	A93D0008	CORRECT FIRE WALL PENETRATIONS - B/463	35
	OE	AA4D0063	RELOCATE TRL505 TO B/463	40
	GPP	AA1D0072	CONVERT CUBICLES TO LAB SPACE FOR GENOME, B/463	70
	GPP	AA1D0061	RENOVATION OF BIOLOGY DEPT LIBRARY	150
	OE	AA3D0018	REPLACE DISTILLED WATER SYSTEM, B/463	151
	GPP	A99D0074	B/463, RENOVATION OF LAB.116	500
	GPP	A99D0075	B/463, RENOVATION OF LAB. 118	500
	OE	AA4D0059	RENOVATE LAB SUITE 182, B/463	500
	OE	AA4D0061	RENOVATE LAB SUITE 284, B/463	600
	OE	AA4D0062	RENOVATE LAB SUITE 117, B/463	700
	OE	AA4D0060	RENOVATE LAB SUITE 267/270, B/463	800
	GPP	N98D0039	B/463 RENOVATION OF LABS 167 & 170	885
	Medical Department - Funded			
	OE	AA3D0021	SEAL B/801 AREA WAY DOORS - PREVENT D/F CELL FLO0D	27
	Medical Department - Not Funded			
	GPP	AA1D0100	MACHINE SHOP EXPANSION, B/801	109
	OE	AA4D0052	RENOVATE LAB 9-801, B/490	250
	OE	AA4D0054	RENOVATE ROOM B-3, B/490	150
	OE	AA4D0089	ROOF REPLACEMENT B/490 BLOCK 11 ANIMAL WING	370
ALD - ENERGY,ENVIRONMENT & NATIONAL SECURITY				
	Enviromental Sciences Department - Funded			
	GPP	AA3D0020	REHAB OF LAB C2, B/815	103
	Enviromental Sciences Department - Not Funded			
	GPP	AA3D0023	CONVERT LOUNGE TO OFFICES, RM 5-131 B/490	55
	GPP	AA4D0075	REHAB LAB #5, B/830	400
	GPP	AA4D0076	UPGRADE LAB C1, B/815	400

	FUND	ADS_NO	TITLE	TEC ($k)
ALD - COMMUNITY EDUCATION, GOVERNMENT & PUBLIC AFFAIRS				
	Educational Programs			
	GPP	P98D0094	BNL SCIENCE MUSEUM / VISITOR CENTER	3,100
ALD - FINANCE				
	None			
DEPUPTY DIRECTOR FOR OPERATIONS				
	None			
ALD - FACILITIES AND OPERATIONS				
	Central Shops Funded			
	GPP	AA5D0011	CENTRAL SHOPS CONSOLIDATION IN B/479	250
	Central Shops Not Funded			
	GPP	N98D0075	B/479 AIR CONDITIONING PHASE III	200
	GPP	N98D0088	B/479 AIR CONDITIONING PHASE II	225
	Emergency Services Funded			
	GPP	AA4D0085	DIESEL EMISSIONS EXHAUST SYSTEM	65
	Emergency Services Not Funded			
	GPP	B94D0008	ENCLOSE B/599 BASEMENT STAIRWELL	55
	GPP	B94D0027	FIRE SUPPRESSION SYSTEM MAINT. AREA - CAA UPGRADE	75
	Plant Engineering Not Funded			
	GPP	A98D0101	B/610 EXTERIOR REPAIRS	450
	OE	A98D0190	SCAN ENGINEERING DRAWINGS	25
	GPP	AA4D0078	EMERGENCY POWER B/30 AND B/321	200
	OE	N98D0099	DEMOLITION OF SURPLUS BUILDINGS	500
	Safeguards and Security Division Not Funded			
	GPP	A94D0004	INSTALL NEW NORTH GATE SECURITY BOOTH AND ROADWAY	120
	GPP	AA0D0040	CONSTRUCT A 1/4 MILE OVAL RUNNING/WALKING TRACK	100
	GPP	AA3D0040	B/750 SECURITY HUB RE-ROUTING	100
	Staff Services Division Not Funded			
	OE	A97D0062	REPAIR LOADING DOCK, B/488	160
	GPP	A98D0113	AIR CONDITION MEETING SPACE-NORTH RM BROOKHAVEN CT	656
	OE	A98D0120	PROTECTIVE COVER OVER GAS DISPENSING ISL-BNL AUTO	134

	FUND	ADS_NO	TITLE	TEC ($k)
	OE	A98D0121	REPAIR SAGGING FOUNDATION - PUBLIC SERVICE STATION	28
	GPP	A98D0122	CONSTRUCT 16 UNIT EFFICIENCY APARTMENT BUILDING	1,000
	GPP	AA1D0069	CANOPY OVER GAS PUMPS, PUBLIC SERVICE STATION	135
	GPP	AA1D0077	ADDITIONAL LIGHTING CAFETERIA DINING AREA	200
	OE	AA1D0078	INSTALL 3 CARGO STORAGE BOXES	125
	OE	AA1D0108	REPLACE BOILER AT BROOKHAVEN CENTER, B/30	80
	OE	AA2D0061	B/317 REHAB	130
	OE	AA2D0072	B/371, REPLACE WINDOWS & SIDING - BROOKHAVEN HOUSE	100
	OE	AA3D0003	USER IMPR0VEMENTS - GYM REHABILITATION	65
	OE	AA4D0015	INVEST./REM. LEAD CONTAM. SOILS BERA SHOTGUN RANGE	1,000
ALD ES&H and QUALITY				
	Radiation Protection Division Not Funded			
	GPP	AA3D0024	BNL VEHICLE RADIATION MONITOR REPLACEMENT	95
	OE	AA5D0008	QUARTERLY BADGING SOFTWARE MODIFICATIONS	200

APPENDIX E
BUILDING USE BY GROUP

BLDG	NAME	GROUP DESCRIPTION	AREA	% TOTAL
0030	Brookhaven Center	Staff Services Div	8,079.35	94.35
		Safeguards & Security Div	483.12	5.64
0050	Police Headquarters	Safeguards & Security Div	6,057.67	100
0051	Environmental Restoration	Environmental Restoration Projects	8,398.95	100
0086	Stationery Warehouse	Surplus Space (DOE-SC)	10,539.27	100
0087	Excess Property Warehouse	Procurement & Property Mgmt.	7,260.52	90.18
		Radiological Control Div	790.06	9.81
0096	Truck/Utility Storage	Plant Engineering Div	5,343.88	100
0097	Maintenance Management Center	Plant Engineering Div	2,341.94	100
0100	Bulk Warehouse	Procurement & Property Mgmt.	12,289.57	100
0120	ESH & Q Office Building	Safety & Health Services Div	3,578.30	37.74
		Radiological Control Div	1,519.86	16.03
		ALD - ESH & Q Direct	398.62	4.2
		ESH & Q Administration	1,631.45	17.21
		Environmental Services Div	2,235.65	23.58
		Suffolk County Health Dept	115.75	1.22
0129	Science Museum Staff & NSLS Offices	Plant Engineering Div	5,368.80	71.31
		National Synchrotron Light Source	269.06	3.57
		Community Education / Gov & PA	1,890.40	25.11
0130	Engineering/Safety & Risk Technology	Plant Engineering Div	2,940.97	19.89
		Community Education / Gov & PA	1,345.94	9.1
		Nonproliferation & Nat Security	492.37	3.33
		Energy Sciences & Tech Dept	8,266.23	55.92
		Information Services	1,284.69	8.69
		Environmental Services Div	121.36	0.82
		Internal Audit Office	329.91	2.23
0134	PE/ Public Affairs/ Fiscal / Intern. Audit	Internal Audit Office	1,584.84	7.61
		Financial Services Div	4,127.30	19.82
		Plant Engineering Div	12,458.59	59.83
		CEGPA Directorate	1,118.72	5.37
		Community Education / Gov & PA	1,530.65	7.35
0153	Cavendish - Men's Residence	Staff Services Div	17,637.56	100
0170	Compton - Men's Residence	Staff Services Div	19,502.08	100
0179	Staff Services/EENS/Post Office	Plant Engineering Div	571.38	5.52
		Financial Services Div	374.11	3.61
		Dept of Environmental Sciences	2,797.20	27.04
		Department of Energy	229.50	2.21
		Staff Services Div	6,368.76	61.58
0180	Fleming - Men's Residence	Staff Services Div	16,153.93	100
0185	Human Resources/Diversity Office	Diversity Office	594.07	7.01
		Human Resources Div	7,877.72	92.98

BLDG	NAME	GROUP DESCRIPTION	AREA	% TOTAL
0193	Teachers Federal Credit Union	Financial Services Div	1,873.26	100
0197	NNSD/Graphic Arts/NNDC	Plant Engineering Div	8,439.05	22.06
		Photo. & Graphic Arts Div	7,124.91	18.62
		Community Ed / Gov & Public Affairs	656.08	1.71
		Energy Sciences & Tech Dept	7,621.63	19.92
		Nonproliferation & Nat Security	14,408.03	37.66
0209	Bulk Warehouse	Procurement & Property Mgmt.	13,748.29	100
0210	Gases Warehouse	Procurement & Property Mgmt.	5,075.29	100
0211	Procurement & Property Management	Procurement & Property Mgmt.	3,203.04	100
0244	Carpenter / Lock & Paint Shop	Plant Engineering Div	9,010.57	100
0257	Guest House	Staff Services Div	5,578.35	100
0258	Curie - Women's Residence	Staff Services Div	12,267.64	100
0302	Apartment 28	Staff Services Div	4,541.70	100
0303	Apartment 34	Staff Services Div	5,099.82	100
0304	Apartment Storage	Staff Services Div	1,204.23	100
0306	Apartment 13	Staff Services Div	3,886.37	100
0307	Apartment 11	Staff Services Div	3,931.02	100
0317	Recreation Hall	Staff Services Div	4,423.41	100
0321	Equipment Storage	Plant Engineering Div	4,472.27	100
0325	Apartment 7	Staff Services Div	3,995.37	100
0326	Site Maintenance Office	Plant Engineering Div	4,959.97	100
0327	Apartment 24	Staff Services Div	3,621.89	100
0328	Apartment 26	Staff Services Div	2,355.55	100
0330	Apartment 8	Staff Services Div	3,746.86	100
0331	Apartment 10	Staff Services Div	3,901.78	100
0334	Apartment 30	Staff Services Div	2,445.70	100
0335	Apartment 36	Staff Services Div	3,033.42	100
0339	Maintenance Storage	Plant Engineering Div	4,211.48	100
0346	Storage	Safeguards & Security Div	249.20	100
0348	Calibrations	Plant Engineering Div	311.73	5.63
		Radiological Control Div	5,220.62	94.36
0349	Apartment 2	Staff Services Div	3,940.69	100
0350	Apartment 4	Staff Services Div	3,957.11	100
0351	Apartment 6	Staff Services Div	3,943.52	100
0355	Users Center/PPM	Procurement & Property Mgmt.	4,904.34	76.35
		Staff Services Div	177.96	2.77
		High Energy & Nuclear Physics	1,340.97	20.87
0356	Solid State Irradiation Facility	Instrumentation Div	3,535.57	100
0359	Apartment 5	Staff Services Div	3,912.79	100
0360	Apartment 3	Staff Services Div	3,900.43	100
0361	Apartment 1	Staff Services Div	4,071.99	100
0362	Apartment 22	Staff Services Div	4,316.08	100
0363	Coin Laundry	Staff Services Div	2,848.07	100
0364	Apartment 40	Staff Services Div	5,562.80	100
0365	Apartment 41	Staff Services Div	5,561.66	100

BLDG	NAME	GROUP DESCRIPTION	AREA	% TOTAL
0366	Apartment 42	Staff Services Div	5,561.66	100
0367	Apartment 43	Staff Services Div	4,863.19	100
0368-01	Summer Cottage	Staff Services Div	1,006.81	100
0368-02	Summer Cottage	Staff Services Div	1,006.81	100
0368-03	Summer Cottage	Staff Services Div	943.70	100
0368-04	Summer Cottage	Staff Services Div	943.70	100
0368-05	Summer Cottage	Staff Services Div	981.81	100
0368-06	Summer Cottage	Staff Services Div	934.25	100
0368-07	Summer Cottage	Staff Services Div	943.70	100
0368-08	Summer Cottage	Staff Services Div	943.70	100
0368-09	Summer Cottage	Staff Services Div	981.81	100
0368-10	Summer Cottage	Staff Services Div	934.25	100
0368-11	Summer Cottage	Staff Services Div	1,006.81	100
0368-12	Summer Cottage	Staff Services Div	934.25	100
0368-13	Summer Cottage	Staff Services Div	934.25	100
0368-14	Summer Cottage	Staff Services Div	934.25	100
0368-15	Summer Cottage	Staff Services Div	1,006.81	100
0368-16	Summer Cottage	Staff Services Div	934.25	100
0368-17	Summer Cottage	Staff Services Div	934.25	100
0368-18	Summer Cottage	Staff Services Div	934.25	100
0368-19	Summer Cottage	Staff Services Div	1,006.81	100
0368-20	Summer Cottage	Staff Services Div	1,006.81	100
0368-21	Summer Cottage	Staff Services Div	934.25	100
0368-22	Summer Cottage	Staff Services Div	934.25	100
0368-23	Summer Cottage	Staff Services Div	934.25	100
0368-24	Summer Cottage	Staff Services Div	934.25	100
0368-25	Summer Cottage	Staff Services Div	934.25	100
0368-26	Summer Cottage	Staff Services Div	934.25	100
0368-27	Summer Cottage	Staff Services Div	934.25	100
0368-28	Summer Cottage	Staff Services Div	934.25	100
0368-29	Summer Cottage	Staff Services Div	934.25	100
0368-30	Summer Cottage	Staff Services Div	934.25	100
0370	Child Development Center	Human Resources Div	834.37	100
0371	Brookhaven House	Staff Services Div	2,917.65	100
0373	Child Care Facility	Human Resources Div	5,474.77	100
0387	Park Shelter	Staff Services Div	600.00	100
0388	Danish House	Staff Services Div	4,400.07	100
0389	Environmental Monitoring Station P4	Environmental Services Div	86.86	100
0397	Salt Storage Bldg.	Plant Engineering Div	3,975.46	100
0400	Research Support	Plant Engineering Div	39,700.00	100
0405	Building Storage	Plant Engineering Div	3,824.26	100
0406	Site Storage	Plant Engineering Div	1,643.76	100
0412	Site Storage	Plant Engineering Div	1,872.04	100
0421	Structural Biology	Biology Dept	4,322.30	100
0422	Building Maintenance Shop	Plant Engineering Div	12,796.42	100

BLDG	NAME	GROUP DESCRIPTION	AREA	% TOTAL
0423	Equip/Vehicle Repair	Plant Engineering Div	4,863.63	41.32
		Staff Services Div	6,904.78	58.67
0438	Science Education Center	Community Education / Gov & PA	3,098.81	100
0449	Telephone & Data Equip Node 1 & 2	Information Technology Div.	1,560.47	100
0452	Utilities Maintenance	Plant Engineering Div	24,077.05	100
0455	Electrical Storage-Bulb House	Plant Engineering Div	713.70	100
0459	Information Technology Division	Information Technology Div.	5,614.53	78.14
		Business Information System	494.84	6.88
		Human Resources Div	1,075.72	14.97
0460	Director's Office	ALD - Finance & Administration Direct	1,334.95	11.59
		Director's Office	897.99	7.8
		Legal Office	1,748.16	15.19
		BNL Director	2,114.33	18.37
		ALD - Deputy Direct for Operations	745.47	6.47
		ALD - Basic Energy Sciences Direct	817.32	7.1
		ALD - Energy, Environ & National Sec	764.41	6.64
		Budget Office	2,467.22	21.43
		ALD - Facilities & Operations Direct	618.47	5.37
0461	Gymnasium	Staff Services Div	10,232.64	100
0462	Central Shop - Sheet Metal Shop	Plant Engineering Div	2,394.78	17.85
		Central Shops	10,794.60	80.46
		Information Technology Div.	226.28	1.68
0463	Biology	Computational Science Center	2,116.14	2.84
		Plant Engineering Div	998.64	1.34
		Biology Dept	71,146.93	95.8
0464	DOE-BHG Group Office	Department of Energy	7,883.90	100
0473	Electron Beam Weld	Plant Engineering Div	1,521.79	42.08
		Central Shops	2,094.19	57.91
0475	Intell Prop/Energy Science & Tech	Energy Sciences & Tech Dept	15,599.22	85.25
		Office Research Admin.	135.77	0.74
		Off of Intel Pro & Sponsored Research	2,300.83	12.57
		Plant Engineering Div	261.18	1.42
0477	Research Library	Information Services	14,010.01	100
0478	Swimming Pool	Staff Services Div	9,857.01	100
0479	Heavy Machine Shop	Central Shops	28,967.72	100
0480	Material Science	Dept of Material Science	30,163.89	100
0481	Sewage Pump House	Plant Engineering Div	96.97	100
0482	Hazardous Storage	Plant Engineering Div	2,950.18	100
0485	Scrap Metals Building	Procurement & Property Mgmt.	9,028.00	100
0486	Machine Shop Storage	Central Shops	274.39	100
0488	Berkner Hall	Staff Services Div	32,866.54	100
0490	Medical Research Center	Medical Dept	58,066.95	50.02
		Radiological Control Div	6,540.79	5.63
		High Flux Beam Reactor	756.60	0.65
		Red Cross	2,917.24	2.51

BLDG	NAME	GROUP DESCRIPTION	AREA	% TOTAL
		Staff Services Div	2,125.23	1.83
		Office Research Admin.	249.40	0.21
		Plant Engineering Div	16,489.78	14.2
		Dept of Environmental Sciences	19,978.64	17.21
		Diversity Office	576.48	0.49
		Department of Energy	817.39	0.7
		Human Resources Div	7,097.90	6.11
		Environmental Services Div	463.43	0.39
0491	Medical Research Reactor	Medical Dept	924.78	10.68
		High Flux Beam Reactor	7,728.10	89.31
0493	Video Work Area/Physical Training	Photo. & Graphic Arts Div	2,921.48	72.23
		Safeguards & Security Div	1,123.05	27.76
0494	BNL Records Holding Facility	Information Services	7,054.44	100
0495	Oil Drum Storage Facility	Central Shops	560.00	100
0496	Storage	Biology Dept	5,775.12	100
0496A	Storage	Biology Dept	919.05	100
0497	Environmental Monitoring Station	Environmental Services Div	52.91	100
0498	Central Shops Cleaning Facility	Central Shops	901.38	100
0510	Physics	High Energy & Nuclear Physics	479.31	0.4
		Plant Engineering Div	1,257.44	1.06
		Historian	614.88	0.51
		Center for Functional Nanomaterials	149.00	0.12
		Physics Dept	115,069.12	97.12
		ALD - High Energy & Nuclear Phys Dir	909.62	0.76
0515	Information Technology Division	Information Technology Div.	25,207.45	75.67
		Plant Engineering Div	1,142.84	3.43
		Physics Dept	6,959.34	20.89
0516	Ground Water Pumping Station	Environmental Services Div	362.24	100
0517	Ground Water Treatment Facility	Environmental Services Div	159.82	100
0518	Ground Water Treatment Facility	Environmental Services Div	160.68	100
0519	Ground Water Pumping Station	Environmental Services Div	206.88	100
0521	Air Sparge/Soil Vapor Extraction Sys	Environmental Services Div	1,702.09	100
0522	Compressed Natural Gas Fueling	Staff Services Div	307.96	100
0526	Energy Efficiency & Conservation	Dept of Environmental Sciences	635.73	3.36
		Energy Sciences & Tech Dept	18,271.07	96.63
0527	Excess Office Space	Surplus Space (DOE-SC)	1,677.59	100
0528	Electrical Ops & ECS Doc Storage	Plant Engineering Div	4,120.53	100
0535	Instrumentation Division	Instrumentation Div	32,727.53	66.71
		National Synchrotron Light Source	16,328.42	33.28
0537	Telephone Equipment Node 5	Information Technology Div.	219.11	100
0539	WSB Ground Water Recovery Unit	Environmental Services Div	99.00	100
0555	Chemistry	Staff Services Div	1,840.65	2.43
		Chemistry Dept	65,311.96	86.26
		Plant Engineering Div	622.10	0.82
		Dept of Material Science	5,561.59	7.34

BLDG	NAME	GROUP DESCRIPTION	AREA	% TOTAL
		Center for Functional Nanomaterials	1,854.89	2.44
		Energy Sciences & Tech Dept	523.66	0.69
0560	High Field MRI Lab	Chemistry Dept	2,468.68	100
0562	Central Shops Sheet Metal Storage	Central Shops	641.54	100
0563	Influent Measuring	Plant Engineering Div	184.19	100
0566	Blower Building	Plant Engineering Div	1,361.34	100
0569	STP Monitoring Station @ MH 192	Environmental Services Div	60.29	100
0570	Weapons Range Equip. Storage	Safeguards & Security Div	190.36	100
0573	Hypochlorite Storage Building	Plant Engineering Div	166.72	100
0575	Sewage Treatment Facility	Plant Engineering Div	1,241.30	100
0580	U.V. Disinfection Discharge	Plant Engineering Div	234.69	56.69
		Environmental Services Div	179.29	43.3
0581	Equipment Storage	Plant Engineering Div	356.25	100
0589	Storage Shed	Plant Engineering Div	49.78	100
0590	Environmental Monitoring Station P2	Environmental Services Div	100.16	100
0591	Environmental Monitoring Station P9	Environmental Services Div	86.69	100
0592	Environmental Monitoring Station P5	Environmental Services Div	99.00	100
0593	Environmental Monitoring Station S6	Environmental Services Div	177.03	100
0593A	Environmental Monitoring Storage Shed	Environmental Services Div	259.88	100
0594	Environmental Monitoring Station P7	Environmental Services Div	87.26	100
0595	Environmental Monitoring Station HMn	Environmental Services Div	52.43	100
0596	Environmental Monitoring Station HMs	Environmental Services Div	52.23	100
0597	Environmental Monitoring Station HQ	Environmental Services Div	41.20	100
0598	Ground Water Treatment Plant	Environmental Services Div	737.60	100
0599	Fire House	Emergency Services Div	8,436.19	100
0600	Chilled Water Facility	Plant Engineering Div	11,240.20	100
0603	69 kV Sub-Switchgear Bldg	Plant Engineering Div	4,077.65	100
0610	Central Steam Facility	Plant Engineering Div	12,572.20	100
0614	Well No. 4	Plant Engineering Div	474.34	100
0618	Well No. 6	Plant Engineering Div	542.18	100
0619	Well No. 7	Plant Engineering Div	540.81	100
0624	Water Treatment Facility	Plant Engineering Div	3,809.39	100
0628	Liquid Hydrogen Facility	Collider Accelerator Dept.	372.51	100
0630	Public Service Station	Staff Services Div	2,158.27	100
0631	AGS 69 kV Sub-Switchgear Bldg	Plant Engineering Div	2,145.35	100
0634	Well No. 10	Plant Engineering Div	622.98	100
0635	Well No. 11	Plant Engineering Div	610.94	100
0636	Fuel Pump House	Plant Engineering Div	1,268.43	100
0637	Well No. 12	Plant Engineering Div	609.77	100
0638	RHIC 69kV Switchgear	Plant Engineering Div	1,655.37	100
0639	Fuel Receiving/Transfer Facility	Plant Engineering Div	7,796.46	100
0641	Water Filter Building	Plant Engineering Div	4,667.87	100
0642	A/C Storage Building	Plant Engineering Div	191.75	100
0645	Well Control House	Environmental Services Div	44.44	100
0646	Air-Stripping & Pump House	Plant Engineering Div	1,033.91	100

BLDG	NAME	GROUP DESCRIPTION	AREA	% TOTAL
0649	Site Maintenance	Plant Engineering Div	560.02	100
0650T	Construction Group	Plant Engineering Div	1,334.80	100
0652	Man Lift Garage/Equip. Storage	Plant Engineering Div	2,500.00	100
0654	Well #10-Carbon Filter Bldg.	Plant Engineering Div	933.90	100
0655	Well #11-Carbon Filter Bldg.	Plant Engineering Div	914.42	100
0657	Well #12-Carbon Filter Bldg.	Plant Engineering Div	933.90	100
0659	Chilled Water Storage Pump House	Plant Engineering Div	1,169.63	100
0670	Sr-90 Pilot Ground Water Treatment	Environmental Services Div	1,478.79	100
0680	West Gate Booth	Safeguards & Security Div	70.64	100
0680A	Visitors Gate Guard Booth	Safeguards & Security Div	52.28	100
0680B	Truck Inspection Booth	Safeguards & Security Div	13.05	100
0701	BGRR Project Offices	Environmental Restoration Projects	8,281.56	100
0703	Lab/Office Building	Energy Sciences & Tech Dept	6,053.10	20.15
		Training Office	2,831.74	9.42
		Radiological Control Div	1,363.43	4.53
		Physics Dept	1,503.13	5
		Nonproliferation & Nat Security	1,490.56	4.96
		Center for Functional Nanomaterials	604.24	2.01
		Plant Engineering Div	12,324.60	41.03
		Dept of Environmental Sciences	3,692.68	12.29
		Community Education / Gov & PA	173.54	0.57
0704	Fan House	Plant Engineering Div	5,276.92	58.34
		High Flux Beam Reactor	3,767.86	41.65
0725	National Synchrotron Light Source	National Synchrotron Light Source	99,902.17	97.51
		Physics Dept	2,549.62	2.48
0726	NSLS Mechanical Tech Supply Facility	National Synchrotron Light Source	3,316.76	100
0727	NSLS Mechanical/Magnet Measure	National Synchrotron Light Source	3,863.84	100
0728M	NSLS Office Building	National Synchrotron Light Source	2,509.68	100
0729	NSLS Source Development Laboratory	National Synchrotron Light Source	7,098.42	100
0750	High Flux Beam Reactor	Staff Services Div	1,273.81	18.91
		Radiological Control Div	2,312.29	34.34
		High Flux Beam Reactor	3,147.12	46.74
0753	Transmitter Station	Safeguards & Security Div	105.22	100
0754	Emergency Operations Facility	Plant Engineering Div	370.57	34.69
		Procurement & Property Mgmt.	149.96	14.03
		Safeguards & Security Div	547.70	51.27
0801	Isotope Research and Processing	Department of Energy	236.01	1.02
		Counter Intelligence	1,658.49	7.17
		Dept of Environmental Sciences	369.30	1.59
		Plant Engineering Div	7,292.16	31.54
		National Synchrotron Light Source	650.59	2.81
0801	Isotope Research and Processing	Medical Dept	10,542.40	45.6
		Energy Sciences & Tech Dept	1,642.97	7.1
		Radiological Control Div	723.91	3.13
0802	Fan House	Plant Engineering Div	711.94	62.8

BLDG	NAME	GROUP DESCRIPTION	AREA	% TOTAL
		Waste Management Div	421.62	37.19
0810	Liquid Waste Transfer	Waste Management Div	1,008.00	100
0811	Waste Concentration Facility	Waste Management Div	1,479.05	100
0815	EENS Multi-program Laboratory	Director's Office	210.00	0.6
		Dept of Environmental Sciences	21,023.06	60.49
		Energy Sciences & Tech Dept	12,725.32	36.61
		Nonproliferation & Nat Security	795.26	2.28
0817	Engineering Support Facility	Collider Accelerator Dept.	6,231.36	100
0820	ATF / Vacuum Group	Collider Accelerator Dept.	8,785.65	37.74
		National Synchrotron Light Source	6,622.93	28.45
		Physics Dept	7,868.25	33.8
0820B	ATF Storage Facility	Physics Dept	680.09	100
0821	Heat Transfer/Fluid Dyn Storage	Energy Sciences & Tech Dept	432.96	100
0830	Environmental Waste Technical Center	Nonproliferation & Nat Security	1,167.22	5.87
		Energy Sciences & Tech Dept	826.02	4.16
		Dept of Environmental Sciences	14,217.43	71.6
		Collider Accelerator Dept.	3,644.55	18.35
0832	Phoenix Assembly Building	Physics Dept	5,727.53	100
0835	CAD Warehouse	Collider Accelerator Dept.	5,814.47	100
0836	Thermal Distribution Research Facility	Energy Sciences & Tech Dept	750.22	100
0839	Environmental Monitoring Station	Environmental Services Div	53.04	100
0855	WMF-RCRA	Environmental Services Div	3,658.50	19.19
		Procurement & Property Mgmt.	1,215.00	6.37
		Radiological Control Div	1,468.83	7.7
		Waste Management Div	12,718.21	66.72
0860	WMF-Operations	Radiological Control Div	444.27	6.1
		Waste Management Div	6,830.39	93.89
		Radiological Control Div	528.74	3.48
		Waste Management Div	14,648.34	96.51
0870	WMF-Mixed Waste	Radiological Control Div	96.00	1.83
		Waste Management Div	5,131.77	98.16
0899	Storage Building	Collider Accelerator Dept.	313.56	100
0901	Radioisotope and Radiotracer C	Chemistry Dept	14,615.72	58.38
		Dept of Environmental Sciences	2,793.14	11.15
		Plant Engineering Div	7,412.39	29.6
		Physics Dept	213.27	0.85
0901A	Van De Graaff Building	Physics Dept	2,097.13	4.6
		Collider Accelerator Dept.	43,403.12	95.39
0902	Magnet Division	Quality Programs & Services Office	1,414.15	1.31
		Quality Programs & Services Office	2,155.11	2
		Physics Dept	724.09	0.67
		Collider Accelerator Dept.	32,916.61	30.67
		DL-Magnet Sub Let to the Div	70,097.65	65.32
0904	Electricians Work Area	Collider Accelerator Dept.	1,613.40	100
0905	Magnet Assembly	Collider Accelerator Dept.	27,963.21	100

BLDG	NAME	GROUP DESCRIPTION	AREA	% TOTAL
0906	Pet Imaging Laboratory	Chemistry Dept	1,655.02	53.24
		Medical Dept	1,453.19	46.75
0907	Heavy Ion Power Supply A	Collider Accelerator Dept.	1,505.36	100
0908	Heavy Ion Power Supply B	Collider Accelerator Dept.	560.79	100
0909	Heavy Ion Beam Tunnel	Collider Accelerator Dept.	13,160.90	100
0911	Office/Service Building	Collider Accelerator Dept.	71,473.32	100
0912	AGS Experimental Halls	Collider Accelerator Dept.	184,346.49	100
0912A	Mechanical Equipment Building	Collider Accelerator Dept.	5,543.17	100
0913	AGS Tunnel	Collider Accelerator Dept.	47,891.10	100
0913A	Fan House A - Northeast	Collider Accelerator Dept.	596.11	100
0913B	Fan House B - North	Collider Accelerator Dept.	586.70	100
0913C	Fan House C - Northwest	Collider Accelerator Dept.	1,490.13	100
0913D	Fan House D - Southwest	Collider Accelerator Dept.	594.09	100
0913E	Fan House E - Southwest	Collider Accelerator Dept.	602.39	100
0913F	Proton House D18	Collider Accelerator Dept.	361.99	100
0913G	Proton House E18	Collider Accelerator Dept.	361.59	100
0913H	Proton House F18	Collider Accelerator Dept.	361.79	100
0913I	Proton House G18	Collider Accelerator Dept.	361.00	100
0913J	Proton House H18	Collider Accelerator Dept.	362.59	100
0913K	Proton House I18	Collider Accelerator Dept.	361.79	100
0913L	Proton House J18	Collider Accelerator Dept.	362.59	100
0913M	Proton House K18	Collider Accelerator Dept.	362.39	100
0913N	Proton House L18	Collider Accelerator Dept.	361.79	100
0913O	Proton House L18A	Collider Accelerator Dept.	990.62	100
0913P	Proton House A18	Collider Accelerator Dept.	362.19	100
0913Q	Proton House B18	Collider Accelerator Dept.	361.99	100
0913R	Proton House C18	Collider Accelerator Dept.	362.59	100
0913S	H-10 Equipment House	Collider Accelerator Dept.	1,689.86	100
0913T	Storage	Collider Accelerator Dept.	1,009.81	100
0914	Booster Equipment	Collider Accelerator Dept.	7,413.38	100
0916	AGS Well 102	Plant Engineering Div	343.43	100
0918	AGS Warehouse	Collider Accelerator Dept.	15,837.70	100
0919	g-2 Experiment Group	Collider Accelerator Dept.	13,792.74	100
0919A	AGS Cryogenics/Target Group	Collider Accelerator Dept.	3,775.51	100
0919B	Works Building	Collider Accelerator Dept.	7,774.46	100
0919C	g-2 Plan-B Refrigerator Room	Collider Accelerator Dept.	485.45	100
0919G	g-2 R&D Refrigerator Room	Collider Accelerator Dept.	919.72	100
0919H	PTR Rectifier House #1	Collider Accelerator Dept.	905.23	100
0919I	PTR Rectifier House #2	Collider Accelerator Dept.	467.31	100
0919J	PTR Rectifier House #3	Collider Accelerator Dept.	731.90	100
0920	E-10 Power Building	Collider Accelerator Dept.	1,433.49	100
0921	Exp. Power Supply Bldg. G-2	Collider Accelerator Dept.	3,718.95	100
0922	Scientific Assembly	Collider Accelerator Dept.	14,209.78	100
0923	Electronic Equipment Repair	Collider Accelerator Dept.	8,582.35	100
0924	RHIC-Magnet Production/Assembly	Collider Accelerator Dept.	17,096.09	100

BLDG	NAME	GROUP DESCRIPTION	AREA	% TOTAL
0925	Works Building	Collider Accelerator Dept.	6,465.17	100
0926	Receiving/Warehouse	Collider Accelerator Dept.	9,660.57	100
0927	N. Experimental Tunnel	Collider Accelerator Dept.	1,163.81	100
0928	Siemens MG Power Supply	Collider Accelerator Dept.	16,109.94	100
0929	RF Power Supply	Collider Accelerator Dept.	9,965.20	100
0930	200 Mev Linac	Collider Accelerator Dept.	83,020.45	100
0931	BLIP	Medical Dept	1,836.62	100
0932	F-10 House Equipment	Collider Accelerator Dept.	1,640.13	100
0935	Science Museum	Community Education / Gov & PA	5,678.54	100
0936	Equipment Storage	Collider Accelerator Dept.	3,775.35	100
0937	Radiation Effects Tunnel	Collider Accelerator Dept.	2,340.02	100
0938	Radiation Effects Facility	Collider Accelerator Dept.	2,519.01	64.22
0938	Radiation Effects Facility	Plant Engineering Div	907.03	23.12
0938	Radiation Effects Facility	Training Office	496.27	12.65
0939	C-A / R & D Laboratory	Collider Accelerator Dept.	12,834.78	100
0940	On-Line Data Facility	Collider Accelerator Dept.	1,703.94	100
0941	Power Supply & Support Building	Collider Accelerator Dept.	1,203.67	100
0942	AGS Booster Tunnel	Collider Accelerator Dept.	12,197.43	100
0943	Magnet Test Control Room	Collider Accelerator Dept.	716.72	100
0944	Magnet Power Supply	Collider Accelerator Dept.	915.97	100
0945	Production Holding	Collider Accelerator Dept.	3,927.16	100
0946	Beam Stop Pump House	Collider Accelerator Dept.	279.15	100
0947	Environmental Monitoring Station	Environmental Services Div	53.48	100
0948	Pump House	Collider Accelerator Dept.	513.50	100
0949	g -2 Tunnel	Collider Accelerator Dept.	3,906.97	100
0950	Vacuum Pump House	Collider Accelerator Dept.	124.91	100
0951	Tower Equipment - T.E. Building	Collider Accelerator Dept.	605.42	100
0952	Storage	Collider Accelerator Dept.	194.33	100
0953	Rectifier House A	Collider Accelerator Dept.	619.12	100
0954	Electrical Utilities	Collider Accelerator Dept.	196.88	100
0956	NSRL Beam Tunnel	Collider Accelerator Dept.	4,026.79	100
0957	NSRL Equipment Building	Collider Accelerator Dept.	4,730.14	100
0958	NASA Space Radiation Laboratory	Collider Accelerator Dept.	2,660.96	98.19
0958	NASA Space Radiation Laboratory	Medical Dept	48.89	1.8
0959	Environmental Monitoring Station	Environmental Services Div	53.73	100
0964	Electrical Storage-CAD support	Plant Engineering Div	496.27	100
0966	Experimental Computer/ Electrical	Collider Accelerator Dept.	1,138.84	100
0974	Radioactive Material Storage	Collider Accelerator Dept.	21,695.95	100
0975	Machine Shop/SPS	Collider Accelerator Dept.	5,316.92	100
1000	Injection Tunnel	Collider Accelerator Dept.	256,548.04	100
1000P	W-Line Power Supply Building	Collider Accelerator Dept.	2,339.86	100
1002	Brahms Experimental Hall	Collider Accelerator Dept.	4,460.76	100
1002A	Instrumentation/Brahms Service	Collider Accelerator Dept.	2,153.17	100
1002B	2 O'clock Cryo Service Building	Collider Accelerator Dept.	3,196.28	100
1002C	Fast Electronics Hut	Collider Accelerator Dept.	454.99	100

BLDG	NAME	GROUP DESCRIPTION	AREA	% TOTAL
1002D	Brahms Counting House	Collider Accelerator Dept.	1,063.34	100
1004A	RHIC RF Support Building	Collider Accelerator Dept.	4,145.24	100
1004B	4 O'clock Cryo/ Main Power Supply	Collider Accelerator Dept.	5,700.00	100
1005E	East Ejection Power Supply	Collider Accelerator Dept.	5,221.20	100
1005H	RHIC Facility Compress Bldg	Collider Accelerator Dept.	11,633.51	100
1005P	Cooling Tower No. 7	Collider Accelerator Dept.	905.78	100
1005R	Cryogenics Refrigerator Wing	Collider Accelerator Dept.	13,700.54	100
1005S	Collider Center	Collider Accelerator Dept.	14,739.47	67.93
		Information Technology Div.	132.22	0.6
		Business Information System	6,826.17	31.46
1006	Star Experimental Hall	Collider Accelerator Dept.	15,647.96	100
1006A	Star Service Building	Collider Accelerator Dept.	2,129.56	100
1006B	6 O' Clock Cryo Service Building	Collider Accelerator Dept.	3,175.00	100
1006C	Star Counting House	Collider Accelerator Dept.	1,705.09	100
1006D	Office Modular	Collider Accelerator Dept.	1,376.76	100
1007W	West Ejection Power Supply	Collider Accelerator Dept.	4,763.89	100
1008	Phoenix Experimental Hall	Collider Accelerator Dept.	11,355.79	100
1008A	Phoenix Service Building	Collider Accelerator Dept.	7,299.64	100
1008B	Service Bldg.	Collider Accelerator Dept.	3,920.26	100
1008C	Phoenix Counting House	Collider Accelerator Dept.	1,122.69	100
1008E	Office Modular	Collider Accelerator Dept.	3,504.40	100
1008F	Mixing Building	Collider Accelerator Dept.	747.32	100
1010	Phobos Experimental Hall	Collider Accelerator Dept.	7,801.03	100
1010A	10 O'clock Cryo/ Phobos Service	Collider Accelerator Dept.	4,491.67	100
1010B	Phobos Counting House	Collider Accelerator Dept.	1,066.15	100
1012	Future Facility/Experimental	Collider Accelerator Dept.	8,335.49	100
1012A	12 O'clock Cryo/Polarimeter Se	Collider Accelerator Dept.	4,227.97	100
1013	Equipment Storage	Plant Engineering Div	191.75	100
1070	Environmental Monitoring Station	Environmental Services Div	53.73	100
1101	CAD Warehouse	Collider Accelerator Dept.	2,354.91	100

APPENDIX F
DIRECTORATE BUILDING USE

DIRECTORATE - DEPARTMENT / DIVISION	BLDG	AREA	% BLDG
BNL Director			
BNL Director	0460	2,114	0.20
Director's Office	0460	898	1.17
	0815	210	0.60
Organizational Total		1,108	
Department of Energy	0179	230	2.21
	0464	7,884	1.56
	0490	817	0.47
	0801	236	1.02
Organizational Total		9,167	
Diversity Office	0185	594	1.47
	0490	576	0.09
Organizational Total		1,171	
Human Resources Div	0185	7,878	2.75
	0370	834	93.36
	0373	5,475	0.52
	0459	1,076	1.10
	0490	7,403	0.26
Organizational Total		22,666	
Internal Audit Office	0130	330	1.15
	0134	1,585	0.56
Organizational Total		1,915	
Legal Office	0460	1,748	2.51
Off of Intel Property & Sponsored Research	0475	2,301	0.71
Photo. & Graphic Arts Div	0197	7,125	1.05
	0493	2,921	1.55
	PS (1)	127	100.00
Organizational Total		10,174	
DL-Magnet Sub Let to the Div	0902	70,098	0.18
Historian	0510	615	0.22

DIRECTORATE - DEPARTMENT / DIVISION	BLDG	AREA	% BLDG
Office Research Admin.	0475	136	0.74
	0490	249	0.07
Organizational Total		385	
Red Cross	0490	2,917	0.10
Suffolk County Health Dept	0120	116	1.22
Total Directorate		126,494	
Deputy Director for Science & Technology			
Information Services	0130	1,285	8.69
	0477	14,010	7.37
	0494	7,054	7.30
Organizational Total		22,349	
Information Technology Div.	0449	1,560	10.28
	0459	5,615	2.66
	0462	226	1.68
	0515	25,022	4.12
	0537	219	100.00
	1005S	132	0.60
Organizational Total		32,774	
Computational Science Center	0463	2,116	0.26
Total Directorate		57,239	
ALD - High Energy & Nuclear Physics Directorate			
ALD - HE & NP Staff	0510	1,389	0.19
	0355	1,341	2.68
Organizational Total		2,730	
Collider Accelerator Dept.	0628	373	56.33
	0817	6,231	1.65
	0820	8,786	1.79
	0830	3,645	0.62
	0835	5,814	8.17
	0899	314	100.00
	0901A	43,403	5.87
	0902	32,917	1.43
	0904	1,613	66.88
	0905	27,963	0.43
	0907	1,505	58.34
	0908	561	100.00

DIRECTORATE - DEPARTMENT / DIVISION	BLDG	AREA	% BLDG
	0909	13,161	100.00
	0911	71,473	0.30
	0912	184,346	0.05
	0912A	5,543	46.81
	0913	47,891	100.00
	0913A	1,192	100.00
	0913B	587	100.00
	0913C	1,490	59.94
	0913D	594	100.00
	0913E	602	100.00
	0913F	362	100.00
	0913G	362	100.00
	0913H	362	100.00
	0913I	361	100.00
	0913J	363	100.00
	0913K	362	100.00
	0913L	363	100.00
	0913M	362	100.00
	0913N	362	100.00
	0913O	991	100.00
	0913P	362	100.00
	0913Q	362	100.00
	0913R	363	100.00
	0913S	1,690	100.00
	0913T	1,010	100.00
	0914	7,413	10.48
	0918	15,838	18.79
	0919	13,793	9.37
	0919A	3,776	3.29
	0919B	7,774	53.19
	0919C	485	71.20
	0919G	920	100.00
	0919H	905	100.00
	0919I	467	100.00
	0919J	732	100.00
	0920	1,433	96.08
	0921	3,719	5.30
	0922	14,210	95.64
	0923	8,582	1.55
	0924	17,096	1.32
	0925	6,465	34.10
	0926	9,661	3.15
	0927	1,164	100.00
	0928	16,110	3.34
	0929	9,965	8.68

DIRECTORATE - DEPARTMENT / DIVISION	BLDG	AREA	% BLDG
	0930	83,020	0.13
	0932	1,640	100.00
	0936	3,775	100.00
	0937	2,340	55.64
	0938	2,519	46.40
	0939	12,835	0.94
	0940	1,704	97.45
	0941	1,204	35.61
	0942	12,197	100.00
	0943	717	32.98
	0944	916	87.50
	0945	3,927	100.00
	0946	279	100.00
	0948	514	100.00
	0949	3,907	41.18
	0950	125	100.00
	0951	605	100.00
	0952	194	100.00
	0953	619	100.00
	0954	197	100.00
	0956	4,027	78.05
	0957	4,730	16.21
	0958	2,661	1.55
	0966	1,139	100.00
	0974	21,696	10.86
	0975	5,317	40.89
	1000	256,548	100.00
	1000P	2,340	64.41
	1002	4,461	100.00
	1002A	2,153	58.36
	1002B	3,196	10.44
	1002C	455	100.00
	1002D	1,063	12.39
	1004A	4,145	21.26
	1004B	5,700	66.17
	1005E	5,221	8.01
	1005H	11,634	1.16
	1005P	906	100.00
	1005R	13,701	49.98
	1005S	14,739	0.96
	1006	15,648	38.67
	1006A	2,130	43.94
	1006B	3,175	24.56
	1006C	1,705	32.79
	1006D	1,377	100.00

DIRECTORATE - DEPARTMENT / DIVISION	BLDG	AREA	% BLDG
	1007W	4,764	33.76
	1008	19,744	73.87
	1008A	7,300	12.45
	1008B	3,920	19.61
	1008C	1,123	100.00
	1008E	3,504	39.75
	1008F	747	38.55
	1010	7,801	100.00
	1010A	4,492	11.05
	1010B	1,066	21.55
	1012	8,335	100.00
	1012A	4,228	0.91
	1101	2,355	100.00
	PS (110)	36,806	100.00
Organizational Total		1,237,835	
Instrumentation Div	0356	3,536	5.20
	0535	32,078	0.24
	PS (1)	665	100.00
Organizational Total		36,279	
Physics Dept	0510	114,744	0.25
	0515	6,959	0.36
	0703	1,503	2.01
	0725	2,550	0.10
	0820	7,868	0.46
	0820B	680	100.00
	0832	5,728	18.33
	0901	213	0.08
	0901A	2,097	0.42
	0902	724	0.12
	PS (12)	4,572	100.00
Organizational Total		147,638	
Total Directorate		1,424,482	
ALD - Basic Energy Sciences			
ALD - Basic Energy Sciences Staff	0460	817	1.94
Center for Functional Nanomaterials	0510	149	0.04
	0555	1,855	0.22
	0703	604	0.99
Organizational Total		2,608	

DIRECTORATE - DEPARTMENT / DIVISION	BLDG	AREA	% BLDG
Chemistry Dept	0555	65,141	0.44
	0560	2,469	6.02
	0901	14,616	0.66
	0906	1,655	11.27
Organizational Total		83,881	
Dept of Material Science	0480	30,164	0.82
	0555	5,562	0.22
Organizational Total		35,725	
Total Directorate		123,031	
Light Sources Directorate			
National Synchrotron Light Source	0129	269	1.78
	0535	16,328	0.25
	0725	99,902	0.10
	0726	3,317	13.90
	0727	3,864	37.92
	0728M	2,510	4.66
	0729	7,098	48.31
	0801	651	2.81
	0820	6,623	1.50
	PS (6)	2,134	100.00
Total Directorate		142,696	
ALD - Life Sciences Directorate			
Biology Dept	0421	4,322	3.67
	0463	70,804	0.06
	0496	5,775	96.96
	0496A	919	100.00
	PS (2)	722	100.00
		82,542	
Medical Dept	0490	58,067	0.31
	0491	925	5.12
	0801	10,542	1.28
	0906	1,453	2.93
	0931	1,837	28.63
	0958	49	1.80
		72,873	
Total Directorate		155,415	
ALD - Energy, Environ & National Security Directorate			
ALD - EENS Staff	0460	764	2.04

DIRECTORATE - DEPARTMENT / DIVISION	BLDG	AREA	% BLDG
Dept of Environmental Sciences	0179	2,797	1.41
	0490	19,979	0.07
	0526	636	1.43
	0703	3,693	2.01
	0801	369	0.31
	0815	21,023	0.38
	0830	14,217	0.62
	0901	2,793	1.27
	PS (8)	1,294	100.00
Organizational Total		66,801	
Energy Sciences & Tech Dept	0130	8,266	3.89
	0197	7,622	1.19
	0475	15,414	0.91
	0526	18,271	1.59
	0555	524	0.69
	0703	6,053	1.99
	0801	1,643	3.09
	0815	12,725	0.95
	0821	433	100.00
	0830	826	1.64
	0836	750	26.52
	PS (9)	2,453	100.00
Organizational Total		74,981	
Nonproliferation & Nat Security	0130	492	0.87
	0197	14,408	0.33
	0703	1,491	1.40
	0815	795	2.28
	0830	1,167	2.71
	PS (2)	636	100.00
Organizational Total		18,989	
Total Directorate		161,535	
Community Education / Gov & Public Affairs Directorate			
CEGPA Directorate Staff	0134	1,119	0.62
CEGPA	0129	1,890	1.73
	0130	1,346	0.77
	0134	1,531	1.23
	0197	656	1.71
	0438	3,099	4.82
	0703	174	0.57

DIRECTORATE - DEPARTMENT / DIVISION	BLDG	AREA	% BLDG
	0935	5,679	94.52
Organizational Total		14,374	
Total Directorate		15,493	
ALD - Finance & Administration Directorate			
ALD - F&A Staff	0460	1,335	2.43
Budget Office	0460	2,467	1.51
Business Information System	0459	495	6.88
	1005S	6,826	0.45
Organizational Total		7,321	
Financial Services Div	0134	4,127	0.90
	0179	374	1.90
	0193	1,873	38.85
Organizational Total		6,375	
Total Directorate		17,498	
Deputy Direct for Operations			
Deputy Direct for Operations Staff	0460	745	1.87
Counter Intelligence	0801	1,658	0.77
Environmental Restoration Projects	0051	8,399	1.61
	0701	26,028	2.06
	0750	71,510	10.29
	PS (10)	3,993	100.00
Organizational Total		109,931	
High Flux Beam Reactor	0490	757	0.10
	0491	7,728	0.08
	0704	3,768	36.26
	0750	3,147	5.34
	PS (6)	406	100.00
Organizational Total		15,806	
Procurement & Property Mgmt.	0087	7,261	65.78
	0100	12,290	56.65
	0209	13,748	100.00
	0210	5,075	7.23
	0211	3,203	3.83
	0355	4,904	1.48

DIRECTORATE - DEPARTMENT / DIVISION	BLDG	AREA	% BLDG
	0485	9,028	100.00
	0754	150	14.03
	0855	1,215	6.37
	PS (2)	618	100.00
Organizational Total		57,492	
Total Directorate		185,632	
ALD - Facilities & Operations Directorate			
ALD - F&O Staff	0460	618	1.49
Central Shops	0462	10,795	0.78
	0473	2,094	24.13
	0479	28,968	0.75
	0486	274	100.00
	0495	560	100.00
	0498	901	100.00
	0562	642	66.29
	PS (3)	345	100.00
Organizational Total		345	
Emergency Services Div	0599	8,436	1.59
	PS(6)	1,829	100.00
Organizational Total		10,265	
Plant Engineering Div	0096	5,344	13.48
	0097	2,342	3.37
	0129	5,963	1.99
	0130	2,941	1.58
	0134	12,459	0.07
	0179	571	2.29
	0197	8,439	4.57
	0244	9,011	0.18
	0321	4,472	76.08
	0326	4,960	5.59
	0339	4,211	1.74
	0348	312	5.63
	0397	3,975	100.00
	0400	39,700	37.27
	0405	3,824	100.00
	0406	1,644	100.00
	0412	1,872	10.24
	0422	12,796	1.94
	0423	4,864	8.41
	0452	24,077	1.02

DIRECTORATE - DEPARTMENT / DIVISION	BLDG	AREA	% BLDG
	0455	714	57.73
	0462	2,395	8.94
	0463	1,232	0.31
	0473	1,522	1.92
	0475	261	0.68
	0481	97	100.00
	0482	2,950	9.67
	0490	6,490	0.17
	0510	1,257	0.17
	0515	1,143	0.54
	0526	830	0.66
	0528	4,121	7.09
	0555	622	0.12
	0563	184	100.00
	0566	1,361	100.00
	0571	43	100.00
	0573	167	100.00
	0575	1,241	36.53
	0580	235	56.69
	0581	356	100.00
	0589	50	100.00
	0600	1,240	4.64
	0603	4,078	3.31
	0610	2,572	7.14
	0614	474	82.92
	0618	542	92.14
	0619	541	92.13
	0624	3,809	52.76
	0631	2,145	76.47
	0634	623	61.19
	0635	611	85.82
	0636	1,268	11.15
	0637	610	85.87
	0638	1,655	2.55
	0639	7,796	75.39
	0641	4,668	10.79
	0642	192	100.00
	0646	1,034	100.00
	0649	560	12.95
	0650T	1,335	14.39
	0652	2,500	100.00
	0654	934	100.00
	0655	914	100.00
	0657	934	100.00
	0659	1,170	100.00

DIRECTORATE - DEPARTMENT / DIVISION	BLDG	AREA	% BLDG
	0703	12,325	1.41
	0704	5,277	6.52
	0754	371	14.40
	0801	7,292	0.89
	0802	712	7.38
	0901	7,412	0.39
	0916	343	53.88
	0933	1,024	7.97
	0933A	432	50.56
	0934A	1,111	100.00
	0938	907	13.68
	0964	496	100.00
	1013	192	100.00
	PS (58)	19,382	100.00
Organizational Total		310,530	
Safeguards & Security Div	0030	483	1.09
	0050	6,058	2.63
	0346	249	100.00
	0493	1,123	16.57
	0570	190	100.00
	0680	71	100.00
	0680A	52	100.00
	0680B	13	100.00
	0753	105	100.00
	0754	548	35.67
	PS (5)	1,698	100.00
Organizational Total		10,590	
Staff Services Div	0030	8,079	11.02
	0153	17,638	50.00
	0170	19,502	50.00
	0179	6,369	1.61
	0180	16,154	46.36
	0257	5,578	50.00
	0258	12,268	41.94
	0302	4,542	100.00
	0303	5,100	100.00
	0304	1,204	100.00
	0306	3,886	100.00
	0307	3,931	100.00
	0317	4,423	4.12
	0325	3,995	100.00
	0327	3,622	100.00
	0328	2,356	100.00

DIRECTORATE - DEPARTMENT / DIVISION	BLDG	AREA	% BLDG
	0330	3,747	100.00
	0331	3,902	100.00
	0334	2,446	100.00
	0335	3,033	100.00
	0349	3,941	100.00
	0350	3,957	100.00
	0351	3,944	100.00
	0355	178	1.32
	0359	3,913	100.00
	0360	3,900	100.00
	0361	4,072	100.00
	0362	4,316	100.00
	0363	2,848	2.78
	0364	5,563	100.00
	0365	5,562	100.00
	0366	5,562	100.00
	0367	4,863	100.00
	0368-01	1,007	100.00
	0368-02	1,007	100.00
	0368-03	944	100.00
	0368-04	944	100.00
	0368-05	982	100.00
	0368-06	934	100.00
	0368-07	944	100.00
	0368-08	944	100.00
	0368-09	982	100.00
	0368-10	934	100.00
	0368-11	1,007	100.00
	0368-12	934	100.00
	0368-13	934	100.00
	0368-14	934	100.00
	0368-15	1,007	100.00
	0368-16	934	100.00
	0368-17	934	100.00
	0368-18	934	100.00
	0368-19	1,007	100.00
	0368-20	1,007	100.00
	0368-21	934	100.00
	0368-22	934	100.00
	0368-23	934	100.00
	0368-24	934	100.00
	0368-25	934	100.00
	0368-26	934	100.00
	0368-27	934	100.00
	0368-28	934	100.00

DIRECTORATE - DEPARTMENT / DIVISION	BLDG	AREA	% BLDG
	0368-29	934	100.00
	0368-30	934	100.00
	0371	2,918	20.96
	0387	600	100.00
	0388	4,400	38.23
	0423	6,905	2.04
	0461	10,233	1.18
	0478	9,857	1.21
	0488	32,867	28.89
	0490	2,125	0.08
	0522	308	100.00
	0555	1,841	2.43
	0630	2,158	11.71
	0750	1,274	9.21
	PS (7)	1,671	100.00
Organizational Total		290,145	
Surplus Space (DOE-SC)	0086	10,539	90.23
	0197	2,166	1.94
	0422	1,065	8.32
	0462	2,718	10.24
	0463	1,088	0.41
	0493	541	13.37
	0527	1,678	8.13
	0528	359	1.62
Organizational Total		20,154	
Total Directorate		642,648	
ALD - ESH & Q Directorate			
ALD - ESH & Q Directorate Staff	0120	399	2.04
ESH & Q Administration	0120	1,631	1.30
Environmental Services Div	0120	2,236	1.04
	0130	121	0.82
	0389	87	100.00
	0490	463	0.20
	0497	53	100.00
	0516	362	50.00
	0517	160	56.55
	0518	161	41.75
	0519	207	73.79
	0521	1,702	100.00
	0539	99	100.00

DIRECTORATE - DEPARTMENT / DIVISION	BLDG	AREA	% BLDG
	0569	60	100.00
	0580	179	43.30
	0590	100	100.00
	0591	87	100.00
	0592	99	100.00
	0593	177	100.00
	0593A	260	100.00
	0594	87	100.00
	0595	52	100.00
	0596	52	100.00
	0597	41	100.00
	0598	738	46.46
	0645	44	100.00
	0670	1,479	7.86
	0839	53	100.00
	0855	3,659	6.37
	0947	53	100.00
	0959	54	100.00
	1070	54	100.00
	OS-1	1,344	20.83
	PS (17)	5,320	100.00
Organizational Total		9,644	
Quality Programs & Services Office	0902	3,569	0.00
Radiological Control Div	0087	790	3.16
	0120	1,520	1.21
	0348	5,221	1.95
	0490	6,541	0.20
	0703	1,363	1.40
	0750	2,312	1.72
	0801	724	1.34
	0855	1,469	6.51
	0860	444	4.13
	0865	529	0.72
	0870	96	1.83
Organizational Total		1,009	
Safety & Health Services Div	0120	3,578	1.35
	PS (3)	1,502	100.00
Organizational Total		5,080	
Training Office	0703	2,832	0.63
	0938	496	3.20
Organizational Total		3,328	

DIRECTORATE - DEPARTMENT / DIVISION	BLDG	AREA	% BLDG
Waste Management Div	0802	422	37.19
	0810	1,008	100.00
	0811	1,479	6.80
	0855	12,718	6.37
	0860	6,830	2.31
	0865	14,648	26.76
	0870	5,132	24.62
	PS (2)	640	100.00
Organizational Total		640	
Total Directorate		55,300	

APPENDIX G
F&I PERFORMANCE MEASUREMENT

G.1 Overview

There are several F&I performance measures some of which are contractual and others which are internal measures used by BNL management. The following reflects the objectives reflected in the pending revision of 3/23/05.

G.3 FY05 F&I Measures

The following are the contractual and internal performance measures tracked for FY05

G.3.1 Contract Measure - Alternative Financing

Measures

Composite score for this initiative will be calculated (weighted) as follows:

$$AF = 0.67 * HRP$$

G.3.1.1 BNL Housing Reconstruction Project (HRP)

Rating	Criteria
Outstanding	Successful in obtaining a funding commitment following either Path A or Path B as described below.
Excellent	Path B – Explore other avenues for funding such as NY State, County, or other Federal agencies etc. while still pursuing DOE approval though DOE authorized Alternative Financing channels.
Good	Path A – Pursue and obtain Acquisition Strategy approval (CD-1) by the Office of Science
Marginal	Submittal of Acquisition Strategy to DOE for approval
Unsatisfactory	No further progress after September 30, 2004

G.3.2 Contract Measure - Maintenance Investment Index (MII) Performance Measure

$$(MII) = \frac{\text{Operating Funded Maintenance Investment in \$}}{\text{Replacement Plant Value (RPV) in \$}}$$

Rating	Criteria
Outstanding	MII ≥ 1.7
Excellent	1.6 ≤ MII < 1.7
Good	1.5 ≤ MII < 1.6

Marginal	$1.4 \leq MII < 1.5$
Unsatisfactory	$MII < 1.4$

Description of Proposed Method:

Maintenance is the day-to-day work that is required to maintain and preserve plant and capital equipment in a condition suitable for it to be used for its designated purpose (see notes, below). Plant Engineering's infrastructure management staff will while account for track all conventional facility maintenance performed in FY 2005 and continue to refine the estimated Replacement Plant Value (RPV) of BNL's facilities. The above calculation will be performed and reported, as required quarterly by DOE. This measure will be based on an RPV calculation completed on 10/1/04, acceptable to BHSO (current RPV is about $1,364 million). RPV may be adjusted for significant changes by mutual agreement.

Notes:
Maintenance costs and work do not include the following:

- Regularly scheduled janitorial work such as cleaning
- Work performed in relocating or installing partitions, office furniture, and other associated activities;
- Work usually associated with the removal, moving, and placement of equipment unless associated with replacement of equipment as part of a maintenance action;
- Work aimed at expanding the capacity of an asset or otherwise upgrading it to serve needs different from or significantly greater than those originally intended;
- Improvement work performed directly by in-house workers or in support of construction contractors accomplishing an improvement;
- Work performed on special projects not directly in support of maintenance or construction; and
- Non-maintenance roads and grounds work, such as grass cutting and street sweeping.

DOE maintenance includes all of the following activities, which may be funded with expense or capital (GPP/line items) funds. However, the MII calculation will only include operating expensed funded maintenance:

- Maintenance is the upkeep of property and equipment, work necessary to realize the originally anticipated useful life of a fixed asset.
- Maintenance includes periodic or occasional inspection; adjustment; lubrication; and cleaning (non-janitorial) of equipment; replacement of parts; painting; resurfacing; and other actions to assure continuing service and to prevent breakdown. Maintenance does not prolong the design service life of the property or equipment, nor does it add to the asset's value. However, lack of maintenance can reduce an asset's value by leading to equipment breakdown, premature failure of a building's subsystems, and shortening of the asset's useful service lifetime. (Generally Expense funded)
- Repair is work to restore damaged or worn-out property to a normal operating condition. Repairs are curative, while maintenance is preventive. (generally expense funded)

- Replacement of an item that is part of the permanent investment of plant and equipment is an exchange or substitution of one fixed asset for another having the capacity to perform the same function.
- Replacement may arise from obsolescence, cumulative effect of wear and tear throughout the anticipated service lifetime, premature service failure, or destruction through exposure to fire or other hazard. In contrast to repair, replacement generally involves a complete identifiable item of investment (i.e., a major building component or subsystem). When major building subsystems fail, a building owner may sometimes have a choice of repair or replacement of that subsystem.

Replacement is typically funded in maintenance and repair budgets. Does not include total renovations or new buildings to replace old

G.3.3 Contract Measure – Energy Contract

Purpose, Means and Strategies

The purpose of this measure is to encourage the Laboratory to obtain the lowest possible electric rates when the existing New York Power Authority (NYPA) contract ends on 06/30/05.

Performance Measure

The ratings indicated below shall apply to the final, DOE-approved contract(s) for electric power supply to BNL beginning on or about 07/01/05.

The "effective rate" used shall be the calculated “average unit cost” and will be determined by applying all electric-related costs, credits and rebates and dividing by the total site energy consumption for FY 2005.

The annual “effective rate” can vary significantly – since it is a function of how power is consumed at BNL, the amount of power scheduled for a given period, programmatic machine schedules, program funding levels, machine reliability, and other factors beyond the Laboratory's control. The purpose of this performance measure is to drive the Laboratory to obtain the lowest future electric rates. Therefore, for purposes of this measure, the “effective rate” will be modeled using the actual FY 2005 monthly energy consumptions and demands (12 months), and the electric rates in effect under the new electric contract.

FY2005 calculated average unit cost for electric power delivered to BNL is:

Rating	Unit Cost ($/kWh)
Outstanding	< $0.07
Excellent	≥ $.07 < $.085
Good	≥ $0.85 < $.09
Marginal	≥ $0.09 < $.10
Unsatisfactory	≥ $0.10

Reference notes:

Unit Cost ($/kWh)	Source
$0.105	LIPA Tariff (using 284 vs. 285)
$0.052	NYPA Rates for FY03

G.3.4 Internal Performance Measure - Infrastructure Reliability

Infrastructure Reliability (Critical Outcome 3.5.5, See attachment 2 for details)
Goal: Minimize unusable time of Facilities and Utilities.
Measure: Availability of Utility Services and Building Facilities

(RI) = 0.6 (ESR) + 0.4 (BFR)

Electric System Reliability (ESR):

$$(ESR) = \frac{\text{Total Customer Hours} - \text{Unplanned Outage Customer Hours}}{\text{Total Customer Hours}}$$

Metric:

Distinguished	ESR = Greater than 0.9998
Commendable	ESR = Greater than 0.9996 to 0.9998
Expected	ESR = Greater than 0.9994 to 0.9996
Needs Improvement	ESR = Greater than 0.9990 to 0.9994
Unsatisfactory	ESR = Less than 0.9990

G.3.5 Internal Performance Measure - % of Planned Preventive Maintenance completed

Goal: Complete 100% of QA 1 and 2 planned PM WO
Measure: % of QA 1 & 2 Planned PM Completed
Metric:

Distinguished	100% QA 1 & 2 planned WO completed
Commendable	95 - 99% QA 1 & 2 planned WO completed
Adequate	90 - 94% QA 1 & 2 planned WO completed
Unsatisfactory	< 90% QA 1 & 2 planned WO completed

G.4 FY06 F&I Measures

Discussions between DOE and BSA have not yet developed any FY06 performance measures. Infrastructure measures for FY06 are expected to be similar to the FY05 measures. The MII performance measure is expected to be adjusted to reflect the 2.0 % commitment and the energy supply measure should be deleted if a new contract for electric energy supply is signed this year.

APPENDIX H
NUCLEAR FACILITY MAINTENANCE

BNL has two facilities categorized as Category 3 Non-Reactor Nuclear Facilities , which are part of the Waste Management Facility (WMF) complex. These are buildings 865 (WMF-Reclamation) and 870 (WMF Mixed Waste). The Waste Management (WM) program has prepared a Maintenance Implementation Plan (MIP) to fulfill the requirements of DOE Order 433.1, Maintenance Management Program for Department of Energy (DOE) Nuclear Facilities. The purpose of the Maintenance Management Program as stated in DOE 433.1 is:

> "To provide general policy and objectives for the establishment of programs for the management and performance of cost-effective maintenance and repair of DOE Nuclear Facilities."

The WMF is a simple, non-complex, Non Reactor Nuclear Hazard Category 3 Facility that has no safety-class or safety significant structures, systems or components (SSCs). As documented in the Final Safety Analysis Report (FSAR), its operations represent a potential hazard only to the immediate vicinity surrounding the facility. Administrative controls documented in the FSAR and Technical Safety Requirements (TSRs) ensure that inventory levels of the WMF do not reach or exceed the Hazard Category 3 limit (threshold for Hazard Category 2). Additionally, proven programs support the safe operation and maintenance of the WMF and procedures that ensure the risks are managed within acceptable limits. Key among these supporting systems are the ISO 14001 Environmental Management System and Integrated Safety Management System, both of which are supported by the Standard Based Management System (SBMS) providing Laboratory-wide policies, standards of performance, procedures, and guidelines governing the work that BNL staff perform.

Other WM facilities include Buildings 802B, 810 and 811. All of these facilities have been designated as being below Hazard Category 3, and are Radiological Facilities. This MIP serves as the plan for all WM facilities. The WM Maintenance Coordinator tracks maintenance for all facilities, and maintenance is conducted at these facilities in accordance with SBMS Work Planning and Control Subject Area and WM Work Control and Planning Standard Operating Procedures (SOPs). A graded approach, however, is used to determine maintenance requirements at WM Radiological Facilities, as stated in section 3 of the WM MIP.

The WM Maintenance Coordinator/Manager controls all maintenance activities conducted at WM facilities, and ensures that activities are performed in accordance with established procedures. Maintenance is defined in DOE Order 433.1 as *"Day-to-day work that is required to sustain property in a condition suitable for it to be used for its designated purpose and includes preventive, predictive, and corrective (repair) maintenance."*

While maintenance work is not performed by WM technicians, it is performed by other BNL organizations and contractors in accordance with BNL's SBMS Work Planning and Control of Experiments and Operations subject area, which includes Integrated Safety Management (ISM) requirements. Some work that could be construed as maintenance, such as housekeeping or surveillances and inspections, is considered to be part of regular operations and is not accounted for in this document. These operational tasks are accounted for in the WM Conduct of Operations program, and are performed in accordance

with Department of Energy (DOE) Order 5480.19, Guidelines for the Conduct of Operations for DOE facilities, the WM Training Program, and the BNL SBMS Radiological Control (RadCon) Manual program description. This is further discussed in Section 3.0, Graded Approach of the MIP.

Most maintenance is performed for WM by BNL's maintenance organization(s), Plant Engineering (PE). Maintenance work is requested by WM and is planned in accordance with the requirements of the SBMS Work Planning and Control of Experiments and Operations subject area and applicable WM SOPs. The PE Division has craft groups such as electricians and carpenters as well as design engineers to provide services in all aspects of maintenance and design. WM offers support for maintenance with engineering assistance as needed, as well as personnel for some maintenance tasks. A member of the WM staff has been designated as the Maintenance Manager/Coordinator. It is this individual's responsibility to complete SBMS Work Planning and Control work permits, track progress of maintenance and assist in maintenance scheduling when needed. The Maintenance Coordinator is considered to be part of maintenance support staff and is not considered "maintenance staff" for WM. WM is responsible for working with maintenance organizations to assure that jobs are being done to specifications and that all work is properly reviewed, completed and accepted. The maintenance implementation matrix (section 4) details how WM complies with DOE Order 433.1, Nuclear Facility Maintenance Management Program.

The MIP will be reviewed every two (2) years and changes submitted to BHSO for approval prior to implementation of subject changes.

APPENDIX I
TEN-YEAR SITE PLAN
DEVELOPMENT PROCESS

I.1 Introduction

The Ten-Year Site Plan compiles information from a number of sources into a single document to present a comprehensive plan for the stewardship of BNL's infrastructure. These sources included the following documents and systems:

- BNL's Science and Technology (S&T) Strategic Plan 2004
- BNL Business Plan 2005
- Site Master Plan 2000 / 2002 Update
- Future Land Use Plan 1995 (Reviewed 2004)
- Integrated Facilities Infrastructure (IFI) Crosscut Budget
- EM Life-cycle Baseline
- Facility Information Management System (FIMS)
- BNL Space Database
- BNL ADS Database (Requested projects database)
- ISES Database (Maintenance projects)

In addition, Directorate Plans were developed based on discussions with BNL's Associate and Assistant Laboratory Directors (ALDs), department chairs, and division heads.

I.2 Science Strategic Plan

The Laboratory Strategic Plan for Science and Technology is the result of a multi-tiered iterative and dynamic process that takes place each year. It begins with the planning committees, appointed by the Chairs and Division Heads of the scientific Departments and Divisions, who evaluate the progress of current initiatives and identify new research opportunities. The cognizant Associate Laboratory Director (ALD) and the Deputy Director for Science and Technology then evaluate them in light of the priorities of the DOE and the Laboratory, DOE-BHSO input, and other national needs, for presentation at the Science and Technology Strategic Planning Meeting. Held each fall, this meeting is attended by the Director, both Deputy Directors, the ALDs, senior science managers, and other selected leaders. The primary purpose of the meeting is to validate and modify as appropriate the Laboratory's science and technology leadership themes and associated initiatives. An integral part of the process involves ranking each initiative into a priority matrix that juxtaposes realism vs. timeliness. For each of the initiatives presented, its purpose and champion, an estimate of its cost and duration, the targeted funding agency, and the major near-term actions, including infrastructure, necessary to ensure its success, are discussed. Once the leadership themes are finalized, they are reviewed again when the Presidential Budget is announced. The Director then requests the champions to assess the discretionary funding required to meet their goals over the next three years. These requests are carefully analyzed to align available funds with Laboratory priorities, weighted by projected program growth and likelihood of success. Before the beginning of the next fiscal year, the leadership areas are revisited to check that they are meeting their short-term goals and that sufficient funds have been allocated to top Laboratory priorities. They are updated and

refined every year as circumstances change, but, in general, they represent the long-term direction for the Laboratory.

I.3 BNL Business Plan

As per Congressional language from the "House Energy and Water Development Committee Report on the FY05 Appropriations Bill, which was agreed to in the subsequent Conference Committee Report", on 1/15/05 Dr. Orbach notified each Laboratory Director of the requirement to prepare a Business Plan. Its purpose is to outline the "primary mission…as it related to each Lab's lead program office(s), a clear statement of secondary missions to support other DOE program offices and other Federal agencies, and a five-year plan identifying research, facilities, and resource requirements necessary to fulfill these primary and second missions." Toward this goal, Dr. Orbach scheduled a meeting with each Laboratory to learn about what it would propose to include in such a Business Plan. BNL's presentation took place on May 16, 2005. In addition to Dr. Orbach, the Office of Science Associate Directors, and members of Dr. Orbach's staff, BNL's Director, both Deputy Directors, the ALD for Policy and Strategic Planning, and representatives from BSA and BHSO attended. It is to be followed by a 10-15 page document.

I.4 BNL Master Plan

Following the philosophy that infrastructure is a platform for research, the Laboratory Director established a Master Plan Steering Committee (MPSC) chaired by the Deputy Director for Operations and charged the Committee with development of a science-driven plan. The Master Plan Steering Committee included, among its members, two of the four science Associate Laboratory Directors, the Institutional Planning Manager, and the Senior Assistant to the Director for Scientific Affairs and the Deputy Manager of DOE's Brookhaven Site Office. A professional planning firm, the S/L/A/M Collaborative, supplemented the in-house efforts of the MPSC and the Plant Engineering Division planning staff.

The Site Master Plan had significant stakeholder involvement that included outreach to several specific groups including:

- BNL employees, visitors and guests
- BNL Users
- DOE Brookhaven Site Office
- Community Advisory Council
- Civic Association leaders and community representatives
- BNL Department Chairs and Division Managers

Communication methods used included a web site, poster sessions, roundtable meetings, surveys, and formal presentations.

The MPSC, with the support of S/L/A/M, reviewed the strategic science plans for the Laboratory as well as all stakeholder inputs and assessed the capability of the current infrastructure to support the rational evolution of current programs and to accommodate new programs that might reasonably be expected to come to BNL. Based on these analyses, and stakeholder

input, a set of Planning Assumptions was developed and used to formulate the specific "Infrastructure Goals and Objectives" discussed in detail in Section 5.

Shortfalls in current infrastructure ("gaps") in terms of capability, condition, and location were discussed and a series of requirements generated to meet the identified infrastructure goals.

Various options for filling the "gaps" were discussed and evaluated at several MPSC – S/L/A/M workshops, all of which were attended by the Laboratory Director. Based on successive options/approaches selected at these workshops, the planning proceeded from land use template, to functional site layout, to siting of individual facilities. Pre-conceptual scoping of specific projects to meet the identified requirements followed this effort.

The next step in the planning process was to decide the priority of the various projects. This was done by a subcommittee of the MPSC and was based on an assessment of the level of the project's contribution to meeting the Infrastructure Goals and Objectives and, where applicable, the need to make the location available for high priority new construction. Each project was also studied to determine an estimated return on investment (ROI).

Finally, for accomplishing the specific project, an assessment was made of the most suitable funding source that included operating funds (OE), General Plant Projects (GPP), General Purpose Equipment (GPE), line item construction and third party financing. The results of this planning effort are shown in the IFI crosscut.

I.5 EM Life-cycle Baseline Preparation

BNL prepared this Baseline pursuant to direction initially provided by the DOE during early February (2004). The DOE's direction has evolved since that time: BNL was initially directed to provide the scope description, cost estimate and schedule to complete the remaining HFBR and BGRR D&D work at Brookhaven. The DOE also directed that HFBR LTRA be included in the out-year cost plan. (In accordance with the DOE's FY2003 direction, this work was not included in the Revision 6 Baseline).

The DOE has provided further direction: BNL was directed to provide a preliminary performance Baseline for the remaining EM work (i.e., HFBR D&D and BGRR pile removal) and with the addition of this scope, include a consolidated, life-cycle cost plan for the EM mission at Brookhaven. This draft Baseline includes HFBR D&D including reactor vessel and thermal shield removal, BGRR pile and biological shield removal, and Brookhaven site-wide LTRA costs concurrent with the completion of the reactor D&D work. The Baseline also provides an update of the out-year LTRA cost plan to include HFBR LTRA and active treatment of Sr-90 groundwater contamination.

The Baseline reflects HFBR and BGRR project development dating back to FY2001 and extensive DOE review. In addition to the most recent examinations conducted by EM-32 and BHSO, elements of the Baseline have also been the subject of other special reviews conducted by the DOE as summarized below:

- TLG Services recently (June, 2004) reviewed BSA's HFBR D&D scope description, schedule and cost estimate. TLG's findings and observations validate BSA's work and recommendations.

- During December 2003, the DOE conducted on independent review of BSA's BGRR pile and bio-shield removal cost estimates. With minor exceptions and comments, the DOE concluded that BSA's cost estimates were reasonable.

- The DOE conducted a review of BSA's draft Baseline for the D&D and industrial re-use of the HFBR reactor facility during FY2001. This earlier DOE review confirmed much of the information that was carried forward by BSA and included in this Baseline.

DOE's latest direction has BSA updating the Baseline during the summer of FY05. (This Baseline version will assume that the HFBR D&D will not include reactor vessel and thermal shield removal). It is intended that this Baseline will represent the performance plan for initiating reactor D&D early in FY06.

I.6 Prioritization

The prioritization process for BNL's General Plant Projects (GPP) and Operations Funded Projects (OE) are described in the Project Prioritization, Programming, and Budgeting Process (3PBP) located as part of the BNL Standards-Based Management System (See Appendix L). It is a probabilistic risk based system based on DOE Capital Asst Management System (CAMP) Scoring Criteria for Infrastructure projects and Risk Prioritization Method (RPM) for ES&H issues. The Infrastructure and ES&H Scoring Team are composed of subject matter experts from BNL and DOE-BHSO. The Consolidation team is composed of senior members of BNL and DOE-BHSO staff.

APPENDIX J
UTILITY SYSTEM – GENERAL INFORMATION

ELECTRIC		
LIPA Feeders	2@	69 kV
Main Substation ,B/603	Three 69kV-13.8kV transf.	60,000 kVA total
C-A Substation, B/631	Four 69kV-13.8kV transf.	80,000 kVA total
C-A Substation, B/638	One 69kV-13.8 kV transf.	20,000 kVA
Maximum demand	59 (73)	MW (MVA)
FY 2003 electric usage	280,000,000	kWH/yr
STEAM		
Boiler 1A	45,000	lbs/hr
Boiler 5	180,000	lbs/hr
Boiler 6	125,000	lbs/hr
Boiler 7	125,000	lbs/hr
Fuel	#2 oil, #6 oil, natural gas	
Buildings served	78	
Feed stocks - oil storage	2,345,000	gallons
FY 2004 production	544,158,609	lbs
FY 2004 peak demand	143,000	lbs/hr
Distribution - steam condensate	11	miles
Steam Pressure	125	psi
POTABLE WATER		
Treatment Plant Capacity	6	mgd
Wells, 6@	1,200	gpm each
Storage tank B/49	350,000	gallons
Storage tank B/640	1,000,000	gallons
Carbon Filters	Located at Wells 10,11, & 12	
Air Stripping (2) - Water Flow	2,400	gpm ea
Air Stripping (2) - Air Flow	11,250	scfm ea
Clearwell storage	250,000	gallons
Distribution system	45	miles
Pressure	55 - 70	psi
SANITARY		
Treatment Plant Capacity	2.3 to 3.0	mgd
Use - summer	1.2	mgd
- normal	1.0	mgd

Emergency storage (2)	2.8 & 4.0	mgd
Collection system piping	19.7	miles
CHILLED WATER		
Centrifugal chillers 3 @	1,250	tons ea.
Steam absorption chiller	1,080	tons
Cooling tower - 3 cell	15,000	gpm
Distribution system	1.6	miles
Buildings served	12	
Chilled water storage	3,000,000	gal
FY 2003 production	140,000	MMBtu
COMPRESSED AIR		
Compressors 2 @	750	scfm ea
Pressure	125	psi
Distribution system	1.6	miles
STORM WATER		
Collection System	9	miles
Permitted discharge points	7	
TELECOMMUNICATIONS		
Switch capacity	12,000	lines
Service - lines	6,273	lines
- instruments	5,360	approx.
- jacks	5,480	approx.
NETWORK		
Throughput	200	mb/sec
Data jacks	6,800	
Supported user devices	6,000	
FIRE ALARM		
Type	NFPA72 - Style 7	Simplex Grinnell 1000, UL Listed
Capacity	20,000	points
In-service	4,700	points
SECURITY ALARM		
Classified		
ENERGY MANAGEMENT		
Buildings/SF served	85 Buildings	2,392,165 SF
Number of control points	4,000	
Devices controlled	410	

APPENDIX K
UTILITY SYSTEM DESCRIPTIONS

1.0 ELECTRIC POWER – 13.8kV and 2.4kV

1.1 Incoming Power

Electric power is supplied to the Laboratory from Long Island Power Authority (LIPA) 138 kV to 69 kV substation located at the eastern boundary of the site. With an annual consumption of about 280 million kilowatt hours (kWh) and a maximum demand of 59 megawatts (MW), BNL is one of the largest electric customers on Long Island. The Laboratory's load requirements, however, are only a small fraction of LIPA's generating capability, and thus they do not significantly affect the private sector. The present generating capacity of the LIPA system is approximately 4,200 MW with a capability of importing 1,100MW from other utilities. LIPA's primary transmission system is a 138 kV looped system, although, no customers are supplied at this voltage. In addition, LIPA has connections to Consolidated Edison (Con Ed), Connecticut Light and Power Company, and the Power Authority of the State of New York. Since October 1, 1981, the Laboratory has receive it's power from New York Power Authority (NYPA), wheeled to BNL via Consolidated Edison, and LIPA's power transmission systems. BNL receives its power through two independent, radial, 69 kV overhead transmission lines on wood poles from the LIPA Brookhaven Substation. These feed three, 69 kV/13.8 kV substations located on BNL premises that are owned and operated by BNL. There are interconnections between BNL's substations through 69 kV overhead lines

1.2 Electrical Distribution System

BNL's main substations transform power from 69 kV to 13.8 kV. These substations are in two physical locations. In Temple Place, substation (No. 603) is rated at 60 MVA, 40 MVA firm capacities assuming the loss of largest transformer, (60 MVA firm capacity with auxiliary cooling). The other location is Fifth Avenue where there are two substations. Substation (No. 631), supplies power to the AGS ring area, is rated at 60 MVA, 40 MVA firm capacity (53 MVA firm capacity with auxiliary cooling). Number 7 transformer (20 MVA capacity) at substation 631 is dedicated to the AGS Booster Accelerated. The newer substation in this location, substation (No. 638), presently consisting of transformer #8 and area for future growth, is rated at 20MVA, 30MVA with auxiliary cooling, supplies power to RHIC overhead lines and provides redundancy for CAD loads including Booster.

The Laboratory main distribution system is an underground 13.8 kV partial loop, radial and selective radial system. The secondary distribution system is 2.4kV consisting of both underground and overhead lines.

2.0 TELECOMMUNICATIONS / NETWORK SYSTEMS

2.1 Telecommunications

BNL operates Siemens/Rolm 9751-9005 voice switch with current capacity of 9,033 active ports distributed over five switch nodes. In addition, the system is wired for another 3,000

ports and expandable to a total of 21,000 ports. Nodes one and two are located in building 449, node three is located in building 703, node four is located in building 1005S and node five is located in building 537. All voice networking is connected through nodes one and two. BNL has one switch node, Siemens/Rolm 9751-9006, which is located in building 449 and used for all video conferencing and call center technology applications. Networking for video conferencing and call center out-dialing terminate in this switch. All switch nodes are under PPA regulations. BNL's communication trunk lines consist of primary lines allowing for direct connection to FTS, Verizon and a number of local exchanges. In addition, there are a number of special dedicated circuits such as the connection to SUNY Stony Brook and other lines under the control of BNL individual departments.

In addition, the system has a Octel Overture 250 (OVT250) Voice Mail System. This system is capable of accommodating 6,000 voice mail boxes. Currently, there are approx. 3,000 active voice mail boxes on BNL's voicemail system. With additional memory, the OVT250 is expandable to 18,000 mail boxes. BNL's voice mail system is owned by the Lab and is under a maintenance support contract with SIEMENS.

2.2 High Speed Fiber Networking Backbone

The BNL core and perimeter defense networks have been engineered to provide reliable and secure network connectivity at the ultra-high speeds demanded by the mission of science. All scientific buildings are supported by fault-tolerant fiber links of at least 1 Gbps. Additionally, our scientific data center supporting the RHIC and ATLAS Computing Facilities are supported by a local area network link exceeding 10 Gbps.

Within the campus, our most important collaborations and enclaves supporting sensitive data are electronically segregated from the rest of the enterprise. This parsing has been engineered to provide added operational protection against unplanned outage, and protection appropriate for data that should not be accessed by those without cause to do so. Our near to mid-term plan for the BNL network calls for a leap into switched wavelength technology within the next 18-24 months, ensuring our network infrastructure remains state of the art and able to support the scientific needs of the BNL community.

3.0 SITE STEAM GENERATION AND DISTRIBUTION

3.1 Overview

The BNL steam system consists of the following major components:

- A Central Steam Facility (CSF), which generates 125 psi steam for distribution to the majority of BNL's buildings for heating, humidification, air conditioning, and process use. (See Table 6-4 for Boilers)
- Approximately 11 miles of insulated underground steam distribution and condensate return piping connected to the major BNL buildings.
- A Fuel Storage and Transfer Facility (FSTF) with a capacity of 2.3 million gallons for handling and storage of No. 6 residual and distillate fuels burned in the CSF boilers.

3.2 Central Steam Facility

The steam system has been expanded numerous times since the construction of the original CSF and steam distribution piping during the 1940s. Consequently, the components are of widely varying ages, some of which are critical to the system's integrity and reliability. Table K-1 lists the central stream system boilers. This disparity in age requires a programmed plan to replace components that are at the end of their useful life to safely and reliably support programmatic operations.

The current steam system load averages about 105,000 lbs/hr during the winter with a peak load of 160,000 lbs/hr. The average summer load is 55,000 lbs/hr with a peak of 75,000 lbs/hr.

Table – K-1 Central Steam Facility Boilers

BOILER	CAPACITY (lbs/hr)	FUEL TYPE	YEAR CONSTRUCTED
Boiler No. 1A	45,000	No. 6 Oil	1962
Boiler No. 5	180,000	No. 6 Oil Natural Gas	1964
Boiler No. 6	125,000	No. 6 Oil Natural Gas	1986
Boiler No. 7	125,000	No. 6 Oil Natural Gas	1994

3.3 Steam Distribution Piping

Portions of the underground steam distribution system are 60 years old. To date, there have been only localized failures of the system, but there is evidence of continued deterioration of the outer conduit of the older sections of pipe. Failure of the outer conduit allows water to leak in, which breaks down the insulation, increases energy losses, and accelerates external corrosion of the carrier pipe.

An on-going program of replacement of old expansion joints and installation of warm-up bypass valves around main steam valves has improved the safety and reliability of the system. A program for control of steam and condensate chemistry has been effective in minimizing internal steam and condensate pipe corrosion.

3.4 Fuel Storage and Transfer Facility

The FSTF has storage capacity for 1.7 million gallons of No. 6 residual fuel oil and 0.6 million gallons of No. 2 distillate. Only the No. 6 fuel storage capacity is used currently due to the low cost of No. 6 fuel.

3.5 Natural Gas

The CSF has the capability to burn natural gas as the primary fuel. However, over the last few years the price of natural gas has exceeded that of No. 6 fuel oil, and therefore has

not been used. Boilers 5, 6 and 7 are capable of burning natural gas. Boiler 1A is oil fired only, but is generally limited for peaking or back-up duty.

4.0 CENTRAL CHILLED WATER GENERATION AND DISTRIBUTION

Air conditioning and refrigeration systems have grown in conjunction with site building construction from 900 Tons in 1950 to over 12,000 Tons in 2004. Of this total, approximately 6,500 Tons in 21 installations are classified as large building chiller systems and located in the major research buildings. The remaining 5,500 Tons range from smaller residential window air conditioning units up to 110 ton refrigeration systems. These units serve other buildings throughout the site.

The Central Chilled Water Facility (CCWF) was added to reduce large amounts of energy consumed at BNL to meet environmental air conditioning and compressed air requirements for the scientific building complexes. The worn air conditioning and compressed air systems located in seven scientific buildings were replaced with chilled water and compressed air from the central plant in January 1990.

The CCWF, Phase I provided 5,000 Tons of cooling and 1,500 scfm of compressed air to 7 major facilities (Buildings 463, 490, 510, 515, 701, 703, and 801) through a new expandable site chilled water and compressed air distribution network. Over the last several years buildings 555, 560, 815 and 725 were added to the system. In addition, a 22,000 ton-hour chilled water storage system was integrated into the CCWF in 1997.

Major equipment in the CCWF includes three 1,250 Ton electric centrifugal chillers, one 1,080 Ton steam absorption chiller, two 750 scfm oil free (instrument quality) air compressor systems, a three-cell 15,000 gallon per minute cooling tower, a 3.2 million gallon chilled water storage tank, and associated condenser water and chilled water pumps. Chilled water is supplied to the 11 buildings through 1.8 miles of supply and return mains, ranging from 36 inches to 6 inches. Trunk chilled water mains are sized for future expansion of the CCWF to a capacity of 15,000 Tons. Chilled water is tied into building systems replacing the existing chillers and related equipment.

BNL is in the process of installing new satellite chillers in building 555 to connect to the CCWF for the purpose of increasing chilled water capacity. The preferred method for additional capacity is the expansion of the actual CCWF. However, limited funds and increasing chilled water demands necessitated an alternative interim solution.

5.0 SITE COMPRESSED AIR SYSTEM

There are about 250 independent compressed air systems, which represent over 1,750 HP and about 10,500 cfm compressed air capacity, throughout the Laboratory. The 7 major facilities connected to the CCWF also receive compressed air through a compressed air distribution system which parallels the chilled water distribution piping.

6.0 POTABLE WATER SYSTEM

The Laboratory's water supply and distribution system provides for process cooling, air conditioning, fire protection, and domestic potable uses. Ground water is the sole supply source. Current usage is approximately 1.4 million gallons per day. The water supply and distribution currently consists of a water treatment plant (iron removal), two elevated water storage tanks, six potable water wells (Nos. 4, 6, 7, 10, 11, and 12), and a piping distribution network connecting these components with the buildings and facilities on site.

There are two elevated water storage tanks, which are in good condition. The first, constructed in 1941, and renovated in 1985, is a 303,500-gallon capacity tank, and the second, constructed in 1985, is a 1,000,000-gallon capacity tank. Both tanks are routinely inspected and maintained to ensure their integrity and reliability. These are used to pressurize the system at 60 to 70 psi throughout the site.

Water is distributed to the buildings and facilities throughout a distribution system, which consists of a network of pipes ranging in size from 2" through 24" in diameter and composed of cast iron, cement lined ductile iron, transite, PVC, and polyethylene (in the trailer area) piping. The average age of the piping is approximately 50 years.

The output from Wells 4, 6, and 7 are connected to the Laboratory's Water Treatment Plant (WTP), which is capable of providing up to 6 million gallons a day of high quality potable water to the system. The WTP presently treats an average of just less than 1.0 million gallons a day. The wells connected to the WTP provide ground water that is high in dissolved iron and manganese. The WTP reduces these metals to below New York State Drinking Water Standards, through a series of steps involving aeration, oxidation/precipitation, flocculation, and filtration. Chlorination using sodium hypochlorite is performed at both the well outlet and the WTP. Due to historical contamination of groundwater near wells 4, 6 and 7 with industrial solvents, the water treatment plant was equipped with aeration towers for volatile organic compound (VOC) removal. Construction of these towers and ancillary structures was completed in 1996 as part of a line-item project for potable water system upgrades. Examination of analytical data for these wells shows that all VOC concentrations have been less than the drinking water standards since 1998.

The water from Wells 10, 11, and 12 does not contain high levels of iron and manganese; consequently these wells are connected directly to the distribution system. Chlorination and injection of sodium hydroxide (for pH control) is performed at the well discharge. As with the other wells, groundwater near wells 10, 11and 12 has, in the past, been found to contain elevated levels of VOCs from past spills and waste management practices. Activated Granular Carbon filtration units were installed on the three wells to remove VOC from the water. However, examination of analytical data for untreated water samples from these wells shows that all VOC concentrations have been less than the drinking water standards since 1998.

Over BNL history numerous small capacity supply wells have been used for process water supplies (i.e., non-potable water). These wells were not connected to the potable water distribution system. Some of these are: Well No. 5, was located at the Sewage Treatment Plant, used for toilets only; Well No. 8, located in the basement of Building 535 and was used for the old civil defense Emergency Relocation Center. Most of these wells have been abandoned in accordance with State procedures. Well No. 9, which is used for irrigation at the Biology greenhouse, is the only active well.

7.0 SITE SANITARY SEWAGE SYSTEM

Much of the existing sanitary sewerage system was constructed as part of the development of Camp Upton by the U.S. Army. The original sewage treatment plant (imhoff tank and leaching fields) was constructed in several stages from 1940 through 1944 to replace the World War I plant (riffle beds). The main sewer line was constructed in 1917 and repaired in 1940. Since then, the system has been extended and significantly modified and has a developed length of about 20 miles.

Because of the continued growth of the Laboratory and the inability of the original sewage plant to handle the increased flow, it was expanded in 1967. In conjunction with portions of the old plant that are still in service, the treatment plant was upgraded to a hydraulic capacity of 2.3 MGD. In 1993, a major project was initiated to bring the plant up to "Ten State Standards" for sewage treatment. These upgrades included construction of modular aeration tanks and secondary clarifiers to provide suspended growth activated sludge treatment for BOD and nitrogen control, an aerobic digester for improved management of waste water treatment residuals, and significant piping upgrades and repair. While the capacity of the new process increased to 3.0 MGD, due to significant waste water conservation efforts, the current average flow for year round is approximately 0.4 MGD with peak instantaneous flows of approximately 1.0 MGD in the summer.. Construction of all plant upgrades was completed in 2002.

The effluent from the Sewage Treatment Plant is discharged into the headwaters of the Peconic River, which flows east from the Laboratory into the Peconic Bay. The Laboratory's Environmental and Waste Management Services and Plant Engineering Divisions regularly monitor influent and effluent at the Plant. Radioactive and chemical contaminants are precluded at the source via monitoring and administrative controls. The existing sewage treatment process provides solids removal via screening, primary clarification, aerobic treatment, secondary clarification, sand filtration and aerobic sludge digestion. Routine monitoring of the plant effluent shows that the discharge continually meets all applicable effluent discharge standards.

Constant monitoring of performance parameters, such as dissolved oxygen, settleable solids, mixed liquor suspended solids, biological oxygen demand (BOD), coliform, conductivity, and pH ensures optimum plant performance to meet the requirements of the Laboratory's New York State (SPDES) operating permit.

Two, 2-million gallon emergency holding ponds, sealed with an impervious membrane liner, were added to the plant, one in 1977 and another in 1990. These ponds provide storage of up to four days' average flow in the event of an accidental release of unsuitable materials into the sanitary system. If the monitoring equipment detects unsuitable materials, it will automatically divert influent to the holding ponds. To ensure the ponds remain liquid tight and to conform to local environmental requirements the ponds were updated in 2001 by the installation of a secondary liner with an interstitial space monitor.

As part of the sanitary system infrastructure improvements, many sanitary mains have either been replaced, relined or spot-repaired to ensure their integrity. Sanitary lines have been extended to the facilities previously connected to cesspools as part of this initiative.

8.0 SITE SURFACE WATER MANAGEMENT SYSTEM

The site surface water management is provided by storm sewer systems consisting of catch basins, ditches, and culverts that collect runoff from roofs, roadways, and other paved and non-paved areas. The site drainage pattern is such that runoffs from the developed central area with higher elevation will generally flow to outer directions.

Drainage Area - North consists of seven storm sewer systems with culvert sizes up to 72" x 44". The area includes most of the research machinery areas (AGS, Tandem Van de Graaff, Boosters, and RHIC) and discharges to the headwaters of Peconic River.

Drainage Area - East consists of five outlets in sizes up to 36" pipe, drains the physical sciences building areas, and generally flows to AGS recharge basins (along with AGS process cooling water), and to other undeveloped low areas to the east.

Drainage Area - South includes administrative services buildings, life sciences buildings, and some of the physical sciences buildings, and consists of eight storm sewers with the largest culvert being 72" x 44" and discharges to recharge basins in the southern portion of the site.

The remaining site area makes up the Drainage Area - West, which covers the smaller housing area, where there are large open spaces and numerous smaller pipe outlets. The storm water systems described above are typical of Long Island Stormwater Management practices because they maximize the percolation of water into the ground and subsequently replenish the aquifer.

9.0 ENERGY MANAGEMENT

9.1 Energy Management Control System (EMCS)

In FY 1989 BNL began to install a site-wide EMCS to employ energy saving control strategies on existing heating, ventilating and air conditioning equipment (HVAC). The system is currently controlling HVAC units in 80 buildings and is continually being expanded.

The primary function of the EMCS is to monitor, control, and report on building systems consuming energy. The EMCS consists of individual microprocessor-based control units, networked together, which can be monitored from a central location and remote stations. The individual control units are configured to implement energy conserving control schemes that provide optimum operation of the building systems. The monitoring stations consist of host computers which display graphic monitoring screens, control programming, as well as trend reports. The system is also used to monitor and control electric demand in conjunction with the electric metering system.

9.2 Demand Limiting Committee - Load Management

BNL controls and limits the maximum site electrical demand through the actions of the Demand Limiting Committee (DLC). The Committee, which consists of representatives of the Energy Management Group and Large electric power users on-site meets monthly to set an electric demand target for the upcoming month. A central electric demand monitoring

system located within the Energy Management Group office triggers an alarm in various machine control rooms at the planned maximum demand. The personnel in the control rooms then attempt to reduce power use by shutting off equipment and/or restricting usage.

Energy costs are reduced by avoiding demand charges and shifting energy consumption from expensive to less expensive periods. Additional savings are realized by reducing demand when called upon through one of LIPA 's load management programs. The program provides electric bill credits for customers willing to reduce electric demand on peak days. Annual savings from these programs exceed $1 million.

Table K-2 Site & Utility Assets

PROP_PROPERTY_ID	PROP_NAME	RPV	RIC	DM
Land, Roads & Walks		**31,850,642**	**100,000**	**100,000**
0001	Improvements To Land	13,504,420	-	-
FENCES	Fences	1,681,509	-	-
LANDSCAPE_SITE PREP	Site Preparation	2,212,540	-	-
PARKING_LOTS	Parking Lots	3,249,066	40,000	104,342
RAILROAD	Railroad Tracks	816,891	-	-
ROADS	Roads And Bridges	8,880,487	60,000	-
SIDEWALKS	Paved Walks	1,505,730	-	-
Utilities - Chilled Water		**11,568,447**	**-**	**8,403**
ST0658	Chilled Water Storage Tank	3,629,340	-	8,403
ST0660	Cooling Tower	Note 2	-	-
WATER_CHILL/AIR	Underground CW & Air Dist Sys	7,939,106	-	-
Utilities - Communications		**2,495,134**	**525,000**	**-**
DUCTBANK_COMM	Com. Ductbank	929,202	-	-
FIBER_OPTIC	Fiber-Optic Infrastructure	1,514,894	-	-
FIRE_ALARM_SITE	Fire Alarm System	51,037	525,000	-
Utilities - Electric		**66,262,028**	**-**	**2,566,052**
13.8 OVERHEAD LINE	13.8kV Overhead Line	3,491,604	-	-
13.8KV CABLE	13.8 Underground Cables	15,741,243	-	372,036
2.4KV OH CABLE	2.4 Overhead Lines	2,715,447	-	2,194,016
2.4KV UG CABLE	2.4 Underground Cables	16,683,771	-	-
GENERATOR_629	Med/Bio Emergency Power	611,325	-	-
ST0613	Substation	162,367	-	-
ST0616	Substation	772,073	-	-
ST0617	Substation	792,500	-	-

PROP_PROPERTY_ID	PROP_NAME	RPV	RIC	DM
ST0643	AGS Substation	293,279	-	-
ST0661	Substation at Rochester Street	1,170,656	-	-
SUBSTA_3J	3J Substation	257,435	-	-
SUBSTA_479	Machine Shop B	491,603	-	-
SUBSTA_5N	5N Substation	257,435	-	-
SUBSTA_603_13.8	Temple Place Substation	5,548,117	-	-
SUBSTA_603_2.4	603 2.4kV Substation	237,420	-	-
SUBSTA_631_13.8	Fifth Ave Substation	5,824,126	-	-
SUBSTA_701	701 Substation	147,646	-	-
SUBSTA_704	704 Transformer	61,055	-	-
SUBSTA_7N	7N Substation	316,439	-	-
SUBSTA_801	801 Transformer	24,823	-	-
SUBSTA_820	820 Transformer	167,679	-	-
SUBSTA_901	901 Transformer	321,245	-	-
SUBSTA_902E	902 East Substation	602,909	-	-
SUBSTA_902W	902 West Substation A-West	224,335	-	-
SUBSTA_A	A Substation	524,246	-	-
SUBSTA_B	B Substation	564,889	-	-
SUBSTA_BC	BC Substation	451,759	-	-
SUBSTA_C	C Substation	564,889	-	-
SUBSTA_E	E Substation	257,435	-	-
SUBSTA_F	F Substation	1,055,998	-	-
SUBSTA_G	G Substation	389,662	-	-
SUBSTA_H	H Substation	257,435	-	-
SUBSTA_K	K Substation	717,339	-	-
SUBSTA_L	L Substation	872,797	-	-
SUBSTA_M	M Substation	2,081,804	-	-
SUBSTA_N4	N4 Substation	237,549	-	-
SUBSTA_P	P Substation	189,745	-	-
SUBSTA_RF	RF Substation	417,972	-	-
SUBSTA_RF_MG	RF_MG Substation	237,459	-	-
SUBSTA_SB	SB Substation	524,518	-	-
Utilities - Potable Water (Note 1)		**21,210,239**	**850,000**	**10,209,934**
ST0049	Water Storage Tank	495,525	150,000	635,848
ST0640	Water Storage Tank	1,994,158	-	47,269
ST0647	Aerator Tank	Note 3	-	-
ST0648	Clearwell	Note 3	-	-

PROP_PROPERTY_ID	PROP_NAME	RPV	RIC	DM
WATER_OTHER	Sewerage And Storm Other	1,050,246	700,000	-
WATER_POTABLE	Potable Distribution	9,320,536	-	9,526,817
WELL_1	Water Supply Wells No 1	455,062	-	-
WELL_10	Water Supply Well No 10	1,093,735	-	-
WELL_11	Water Supply Well No 11	1,006,281	-	-
WELL_12	Water Supply Well No 12	1,480,847	-	-
WELL_2	Water Supply Well No 2	472,094	-	-
WELL_4	Water Supply Well No 4	1,563,083	-	-
WELL_6	Water Supply Well No 6	1,139,298	-	-
WELL_7	Water Supply Well No 7	1,139,374	-	-
Utilities - Sanitary/Storm		**30,130,632**	**-**	**10,000,000**
SEWER_GRAV	Sewerage Sys Gravity	16,916,824	-	10,000,000
SEWER_PLANT	Sewerage Treatment Plant	10,410,844	-	-
SEWER_PUMP	Sewerage System Pumped	1,124,722	-	-
ST0558	Retention Pond #1	Note 4	-	-
ST0559	Retention Pond #2	Note 4	-	-
ST0564	Primary Effluent Pumping Station	Note 4	-	-
ST0565	Modular Aeration Tanks	Note 4	-	-
ST0567	R.A.S Pumping Station	Note 4	-	-
ST0583	Chopper and Grater	Note 4	-	-
ST0585	Primary Clarifier	Note 4	-	-
ST0663	Aerobic Digester	Note 4	-	-
STORM_GRAV	Storm Water System-Gravity	1,640,582	-	-
STORM_PUMP	Storm Water Sys Pumped	37,660	-	-
Utilities - Steam		**100,381,138**	**500,000**	**16,265,000**
610-BLR001A	Boiler 1A (B/610)	3,128,647	-	120,000
610-BLR005	Boiler 5 (B/610)	15,629,403	-	-
610-BLR006	Boiler 6 (B/610)	7,452,272	-	-
610-BLR007	Boiler No. 7 (B/610)	3,233,703	-	-
6250555	Chemistry (B/555)	24,501	-	-
CONDENSATE	Condensate Return System	10,962,818	-	-
HEAT_SYS_OTHER	Heating System Other	8,572,570	-	-
ST0611C	Fuel Oil Tank #3 300K Gal.	751,626	-	-
ST0611D	Fuel Oil Tank #4 420K Gal.	737,397	-	-
ST0611E	Fuel Oil Tank #5 300K Gal.	810,547	-	-
ST0611F	Fuel Oil Tank #6 300K Gal.	372,147	-	-

PROP_PROPERTY_ID	PROP_NAME	RPV	RIC	DM
ST0611G	Fuel Oil Tank #9 400K Gal.	875,764	-	-
ST0611H	Fuel Oil Tank #10 600K Gal.	54,200	-	-
STEAM_PLANT	Central Steam Plant (B/610)	138,257	-	-
STEAM_SYS	Steam Supply System	47,637,284	500,000	16,145,000

NOTES

1 Does not reflect value of assets inherited from Camp Upton
2 Asset value was TFA'd with asset 0600.
3 Asset value was TFA'd with asset 0624
4 Asset value was TFA'd with asset 0575

TABLE K-3 Summary of Utility System Problems and Proposed Projects

PROBLEM	ASSOCIATED PROPOSED PROJECT
Electrical Distribution System	
Deteriorating Distribution Cables	AA1D0028 Electrical Systems Modifications – Ph III ($10M)
Improve Site Backup Supply	AA1D0050 Substation 638 Expansion ($7M)
2.4 kV System Reliability	N98D0023 Replace O/H Electric Lines W/UG Cable Harvard St.($175k)
Steam Generation / Distribution System	
Deteriorating Distribution System	N98D0020 Central Steam Rehab Ph I ($8 M) AA1D0027 Central Steam Rehab Ph II ($8 M) AA1D0085 Steam System Improvements Site-wide (Manhole Upgrades) ($5M)
Reliability of Steam Generation	A98D0091 Convert Boiler 1A to Natural Gas ($60k) A98D0092 Boiler 1A Re-tube Front Half ($120k)
Potable-Water Distribution System	
Deteriorating Distribution System / Fire Fighting Capability	AA1D0026 Potable Water Distribution System Ph II ($8M) A98D0051 Building Isolation Valves ($50k)
Reliability Water Production / Storage	N98D0049 Paint Elevated Storage Tank ST0049 ($400k) A99D0061 Connection of Well 102 to Supply System ($300k)
Sanitary-Water Collection System	
Monitoring Discharge Permit Requirements	A99D0066 Sanitary Main Rad. level Detection System ($700k)
Deteriorating Collection System	AA1D0029 Sanitary Systems Modifications Ph IV ($10M)
Storm-Water Collection System	
Storm Water Management	AA1D0030 Surface Water Management Upgrades ($5M) A98D0020 Transfer Roof Drains to Storm Water System ($600k)
Chilled Water / Compressed Air Generation / Distribution System	
Chilled Water Supply Needs / Replacement of Building Chillers	A99D0097 Chiller Replacements ($2.8M) N98D0069 Chilled Water Phase II ($11M)

APPENDIX L
PROJECT PLANNING, PROGRAMMING, & BUDGETING PROCESS (3PBP)

The following is excerpted from the BNL Standards Based Management System Program Description for Project Planning, Programming & Budgeting Process (3PBP).

1.0 Background

The Project Planning, Programming and Budgeting Process (3PBP) was developed to meet several key objectives of DOE and Laboratory senior management. The 3PBP

- Provides an integrated, prioritized list of projects for accomplishment in the current fiscal year
- Provides an integrated, prioritized list of projects to be incorporated in the Laboratory budget submission to DOE for the Budget Year (CY+2)
- Identifies key unfunded projects and prompts development of near-term measures to reduce associated risks
- Develops a prioritized backlog list for input to strategic planning and decision-making
- Ensures stakeholders' concerns are considered in the resources allocation process
- Provides a mechanism to link the Laboratory's goals with project-approval decisions
- Ensures that decisions regarding prioritization and allocation of Laboratory resources are made with the most current information and are well-documented
- Allows flexibility for introduction of new priorities throughout the year
- Provides a mechanism for conversion of project priorities to budget documents
- Provides a mechanism for conversion of project priorities to the Ten Year Site Plan.

To ensure these objectives are met, the system has been designed to follow the schedules of the annual DOE Field Budget Call process and the DOE-SC Institutional Planning process.

Senior management of the Laboratory is committed to operating the Laboratory's programs and facilities safely, and with pride and distinction. The excellence and relevance of our science will be mirrored by a commitment to excellence in the protection of the health and safety of our workers and the public, and in stewardship of our environmental resources.

Key to meeting these commitments is the ability to ensure resources are made available to address the highest priority needs of the Laboratory in the areas of environment, safety and health (ES&H), the infrastructure, and the support needs of our scientific programs.

We will continue to develop and refine our management systems to ensure

- All needs are promptly identified, accurately scoped, and costed.
- Commitments and corrective actions identified by others are tracked and fed into the planning, programming, budgeting, and execution process.
- The most current and effective methods are used to prioritize needs.

- Public and community concerns and interests are factored into our prioritization processes.
- Senior management is fully engaged in the decision-making process.
- DOE is involved throughout the process.
- Once developed, the list of projects to be accomplished is managed under a project management framework.
- The entire process is open to public scrutiny and input.

2.0 Roles and Responsibilities

2.1 Program Manager: The Program Manager (PM) is the focal point for the process and reports to the Assistant Laboratory Director for Facilities & Operations (ALD F&O). The PM has the functional lead for the Project Planning, Programming, and Budgeting Process (3PBP) and is responsible for maintaining awareness of trends in project prioritization processes within the DOE complex, with particular emphasis on the Risk Prioritization Method (RPM) and the Capital Asset Management Process (CAMP). The PM coordinates all aspects of the 3PBP and ensures schedules are met and all relevant process elements are properly executed. The PM reviews all process outputs for quality and recommends process revisions to the ALD F&O. The PM maintains the files for the process and produces periodic reports on the status of the process for Laboratory and DOE management. The PM interfaces with key stakeholder groups to ensure input and feedback of information is adequate and accurate.

The Program Manager role will normally be assigned to a senior member of the staff of the ALD F&O. The term of service will be at the discretion of the ALD F&O.

2.2 Prioritization Teams: All members of the Prioritization Teams are responsible for attending and participating in Activity Data Sheet (ADS) scoring meetings, and reviewing ADSs submitted for scoring. Prioritization Team Leaders are responsible for ensuring that each new ADS is reviewed and evaluated for the technical aspects of each activity. After review, the Team Leader will facilitate the meetings in which these ADSs are categorized and then assign objective, quantitative scores based on the appropriate scoring model. See Appendices A and B for information on Prioritization Teams.

2.3 Consolidation Team: All members of the Consolidation Team are responsible for attending and participating in scoring meetings, and reviewing associated material prepared for these meetings. The Consolidation Team leader is responsible for ensuring that each new ADS is reviewed and evaluated based on the management aspects of each activity, including its relationship to the Laboratory Critical Outcomes and its consistency with the Laboratory Institutional and Infrastructure Plans. After review, the Team Leader will facilitate the meetings in which these ADSs are scored (referred to as "BINed"). See Appendix C for information on the Consolidation Team.

3.0 Process Description

3.1 Introduction

The Project Planning, Programming & Budgeting Process (3PBP) is the method used to document and track project needs and the risk of associated unfunded activities. The core of the 3PBP process is the Activity Data Sheet (ADS) database. This database contains the list

of all project needs that provides output to the various planning review processes that occur during the fiscal year. These ADSs form the basis for presenting the Laboratory ES&H and Infrastructure needs and unfunded risks to BNL management and DOE. The output data are used to provide the basis for the Ten-year Site Plan, General Plant Projects (GPP) and Operating Funded Projects programs, and other planning and programming documents, which are needed to support the BNL response to the DOE Field Budget Call.

The Laboratory has several key processes that provide information about ES&H, infrastructure and program support needs to Laboratory management. These are

- Public Involvement Organizations input
- Regulatory Agency (oversight activities, inspections, and reviews)
- Department of Energy oversight activities (daily oversight; formal reviews; specialized teams; facility representative program)
- Corporate oversight reviews by BSA
- BNL calls for new ADSs and revision and update of existing ADSs
- BNL Department/Division Self-assessments (Tier I and Integrated Assessment Program)
- BNL Facility Inspection Program
- BNL Preventive Maintenance Program Inspections
- BNL Department/Division
    - ES&H Representatives and Coordinators
    - Facility Use Coordinators
    - Maintenance Representatives
    - Building Managers
- BNL Ten-year Site Plan Development
- BNL Planning Teams

In general, the Infrastructure Management Group of Plant Engineering collects and tracks nonmaintenance-related ESH&I needs that require prioritization as Activity Data Sheets (ADSs). Maintenance-related ESH&I needs, which are referred to as Recurring Maintenance, are collected and tracked by the Maintenance Management Group of Plant Engineering outside of the 3PBP process. High-value maintenance projects, which have a significant ES&H driver, can be submitted for funding through the 3PBP process.

The major input and output processes are described in more detail below. See Appendix D for a chronology of these processes.

3.2 Input Processes

3.2.1 ES&H and Infrastructure Project Activity Data Sheets (ADSs)

The Activity Data Sheets (ADSs) document the ES&H and Infrastructure "project" requirements and are used to develop the GPP, and Line Item and Operating Funded project programs. These ADSs are used by DOE to meet Congressional reporting requirements. A memo is issued annually to all Department and Division Administrators with copies to the individual activity champions requesting that existing Project ADSs be updated. A call for new ADSs is issued annually for those new project requirements not already documented. In addition, new ADSs for addressing urgent needs may be submitted at any time to the 3PBP Program Manager (PM) for immediate consideration. These ADSs

will be scored, and if agreed to by the ALD F&O, will be brought to the Management Council to determine if the current year program should be modified to accommodate the new ADS.

Note: To create a new Project ADS, download and complete the ES&H Project Worksheet or the Infrastructure Project Worksheet and return the worksheet to Infrastructure Management. To revise an ADS, request a copy from Infrastructure Management by ADS number, revise, and return it to Infrastructure Management.

3.2.2 Funding Targets

The Laboratory Budget Officer provides the PM with budget targets that are used to develop Operating Funded Projects and GPP Funding Authorization Status Sheets (FASS) from the Consolidated Unfunded Requirements List (CURL). The FASS is the official program document for the fiscal year.

3.2.3 Risk Score

ES&H and Infrastructure Prioritization Teams score their respective projects using DOE-provided scoring models: the Risk Prioritization Method (RPM) for ES&H projects and the Capital Asset Management Process (CAMP) for Infrastructure projects.

3.2.4 Critical Outcomes and Performance Measures

The Management Council, together with DOE, establishes annual Critical Outcomes and related Performance Measures, which define senior management's priorities for the coming year. Master Plan strategies are developed and approved by BNL management. The Consolidation Team considers these objectives when assigning a project BIN to an ADS.

3.3 Output Processes

3.3.1 Ten-year Site Plan, Budget Call, and IFI Crosscut

The Ten-year site Plan and IFI Crosscut summarize the Laboratory's anticipated near- and mid-term infrastructure-related goals and subsequent project needs. These needs are determined from the backlog of projects recorded in the ADS database. The budget call provides BY-2 through BY+0 projects, project descriptions and cost allocations as well as BY+1 through BY+4 projects and cost allocations in support of DOE’s budget submission process.

3.3.2 Consolidated Unfunded Requirements List (CURL)

A listing of all Activity Data Sheets for GPP, Line Items, and Operating Funded Projects sorted in descending order according to BIN (management score) and RPM score (technical risk score) is assembled into one document, which shows the ADS number, title, and funding requirements. The current year CURL shows the funded projects, their funding profile, and the backlog of unfunded projects. Accelerator Improvement Projects (AIP), which are prioritized by the cognizant ALD, also are shown on the CURL.

3.3.3 Program Authorization Documents

The final approved projects from the FASS are sent to DOE for approval on the Funding Authorization Status Sheet along with the required NEPA Determination Form, Davis-Bacon Determination Sheet, and Construction Directive Authorization Form.

Appendix A: ES&H Prioritization Team

The BNL ES&H Prioritization Team is a multidisciplinary team composed of subject matter experts in environmental, safety, health, and infrastructure issues, which reviews each ES&H project using the Risk Prioritization Model (RPM) system. A numerical (risk reduction) score is assigned to each project and the rationale for scoring is documented. In addition, the team is empowered and expected to identify and score any additional projects that may arise out of its deliberations or the input of its members.

Membership: The ES&H Prioritization Team is composed of functional subject matter experts with particular expertise in the goals and issues current at the time the team is composed. The Chair selects team members and may assign subteams where appropriate. At a minimum, the team consists of members from the following:

- DOE/BHSO
- Plant Engineering
- Scientific Department
- Safety & Health Services
- Radiological Controls
- Environmental Services
- Waste Management
- Environmental Restoration

The Prioritization Team Chair is appointed by the Deputy Director for Operations. The term of service is at the discretion of the Deputy Director for Operations. Team members are appointed by the Team Chair; however, team members should periodically rotate to increase the diversity of ideas and reduce the burden on individuals and Departments/Divisions. Rotating team membership acts as a valuable tool to educate Laboratory staff in ES&H and Infrastructure issues. Members may be re-appointed, but the goal is to inject new thinking and viewpoints into the prioritization process each cycle. Thus, several different people consider the same project in the planning stages. This approach also educates many mid-level Laboratory managers about the ES&H and Infrastructure, and Program Support issues facing the Laboratory.

Materials: The team and any subteams have the following materials made available for their use:

- Original input from BNL organizations (ADSs, other scope, cost and technical information) in response to the budget call
- Backlog information
- Key Laboratory goals and issues.

Team Procedures:

- Team receives materials one week in advance of the working meeting.
- Teams use the RPM to assign a risk reduction score to each project.
- The rationale for scoring each project is recorded in the scoring comments section of the ADS.

Appendix B: Infrastructure Prioritization Team

Purpose: The Infrastructure Prioritization Team is a multidisciplinary team composed of subject matter experts in infrastructure issues, including the special infrastructure needs of the scientific programs. The teams are responsible for assigning a numerical score to each project submitted to it by the team Chair, using the Capital Asset Management Process (CAMP) criteria. In addition, the teams are empowered and expected to identify and score any additional project needs that may arise out of their deliberations and the input of their members.

Membership: The team will be composed of workers, supervisors, and system operators familiar with the condition and design and operational deficiencies of the facilities and systems for which projects are being proposed. The Chair will select team members and participants as needed, and may assign subteams to review various categories of projects. At a minimum the team will consist of members from the following:

- DOE/BHSO
- Plant Engineering
- Scientific Department
- Safety & Health Services

The Prioritization Team Chair is appointed by the Deputy Director for Operations. The term of service will be at the discretion of the Deputy Director for Operations. Team members also are appointed by the Team Chair; however, team members should be periodically rotated to increase the diversity of ideas and reduce the burden on individuals and departments. Rotating team membership acts as a valuable tool to educate Laboratory staff in ES&H and Infrastructure issues. Members may be re-appointed, but the goal is to inject new thinking and viewpoints into the prioritization process each cycle. Thus, several different people will consider the same project in the planning stages. This approach also educates many mid-level Laboratory managers about the ES&H and Infrastructure, and Program Support issues facing the Laboratory.

Materials: The team and any subteams will have the following materials made available for their use:

- Original input from BNL organizations (ADSs, other scope, cost, and technical information) in response to the budget call
- Facility Inspection Reports (if requested)
- Facilities and Systems Planning studies and recommendations (if requested)
- Backlog information
- Key Laboratory goals and issues.

Team Procedures:

- Team members receive materials one week in advance of the working meeting.
- Teams are broken into subteams, as appropriate, to address discipline or trade specific projects.
- Project requesters may be invited for discussions as needed.
- All projects are scored using the Capital Asset Management Process (CAMP).
- The rationale for each projects score is documented in the scoring comments section of the ADS.
-

Appendix C: Consolidation Team

The Consolidation Team is a cross-functional team of senior Laboratory managers who apply their knowledge of current Laboratory, goals, issues, and sensitivities to developing a consolidated list of prioritized project needs. The team assigns a management priority (called a bin), which is used to produce the final prioritized list of project needs. The team ensures that the list includes projects that are appropriate and aligned with the strategic goals of the Laboratory.

The Chair and the members of the Consolidation Team are appointed by the Deputy Director for Operations. The team's membership consists of the following or their designees:

- ALD-Facilities & Operations
- ALD-ESH & Quality
- ALD-Environmental Management
- ALD-Science (Rotating Basis)
- Department Administrator (Rotating Basis)
- Budget Officer
- Department Representatives (Rotating Basis)
- DOE/BHSO Representatives
- 3PBP Program Manager
- ES&H Prioritization Team Chair
- Infrastructure Prioritization Team Chair

The term of service will be at the discretion of the Deputy Director for Operations. Team members should periodically rotate to increase the diversity of ideas and reduce the burden on individuals and departments. Rotating team membership acts as a valuable tool to educate Laboratory staff in ES&H and Infrastructure issues. Members may be re-appointed, but the goal is to inject new thinking and viewpoints into the prioritization process each cycle. Thus, the same project will be considered by several different people in the planning stages. This approach also educates many mid-level Laboratory managers about the ES&H and Infrastructure, and Program Support issues facing the Laboratory.

Materials: The following support materials will be made available to the Consolidation Team members:

- Summary of key findings from Laboratory self-assessments and external reviews
- Summary of Institutional Plan goals, initiatives, and issues

- Criteria used for binning
- Project lists with scores (Initial CURL with new projects in BIN 9)
- Risk Prioritization Model (RPM) Process description
- Capital Asset Management Process (CAMP) Process description
- List of previously Binned projects, which the Program Manager suggests should be considered for review (members are also encouraged to bring up other projects for reconsideration).

Team Procedures:

- Team receives materials one week in advance of the working meeting.
- An 8-hour session is allocated for the working session.
- Briefings are presented at the beginning of the session:
    - 3PBP Overview
    - RPM Process Overview
    - CAMP Process Overview
    - Key high priority stakeholder issues
    - Laboratory and DOE strategic goals
    - Team reviews each project and assigns ranking of 1,2,3, or 4 (deferred)
    - Rationale for changing a project priority is fully documented and is related to goals and issues.

APPENDIX M
DEFERRED MAINTENANCE PROJECT LISTING

ASSET_NO	ADS_NO	TITLE	TEC	SCORE
0555	AA4D0090	ROOF REPLACEMENT B/555 N/E CORNER	210,000	379
0900-BLDG	A98D0014	ROOF REPLACEMENT (BACKLOG)	8,623,000	379
0463	AA4D0060	RENOVATE LAB SUITE 267/270, B/463	800,000	320
0830	AA4D0075	REHAB LAB #5, B/830	400,000	320
7125030228	AA1D0027	CENTRAL STEAM DISTRIBUTION SYS - PH II	15,000,000	319
13.8KV CABLE	AA1D0028	ELECTRICAL SYSTEM MODIFICATIONS - PH III	10,000,000	319
7154030247	AA1D0029	SANITARY SYSTEM MODIFICATION PH IV	10,000,000	319
7131030230	AA1D0026	POTABLE WATER SYSTEM UPGRADE PH II	8,000,000	319
VAR	AA3D0002	MULTI_PROGRAM SCIENCE LAB RENOVATION PH I	16,000,000	314
VAR	AA1D0018	MULTI_PROGRAM SCIENCE LAB RENOVATION PH II	18,000,000	314
VAR	AA1D0019	MULTI_PROGRAM SCIENCE LAB RENOVATION PH III	20,000,000	314
VAR	AA1D0020	MULTI_PROGRAM SCIENCE LAB RENOVATION PH IV	22,000,000	314
VAR	AA1D0021	MULTI_PROGRAM SCIENCE LAB RENOVATION PH V	24,000,000	314
0900-BLDG	P95D0004	RETROFIT 480V BRKS W/SOLID STATE TRIP DEVICES	700,000	309
0900-BLDG	AA4D0097	UPGRADE 480V BREAKERS W/SS TRIP DEVICE FY05	100,000	309
0820	AA4D0081	REPLACEMENT OF CRITICAL HVAC SYSTEMS, ATF B/820	300,000	260
0371	AA2D0072	B/371, REPLACE WINDOWS & SIDING - BRKHVN HOUSE	100,000	226
0510	AA5D0002	UPGRADE B/510 FREIGHT ELEVATOR	300,000	202
0463	AA3D0054	UPGRADE B/463 HYDRAULIC ELEVATOR	230,000	202
1005S	N98D0081	B/1005 ELEVATOR REPLACEMENT	100,000	202
0463	AA3D0019	GENOME'S TO LIFE LABS RENOVATION PHII, B/463	500,000	200
0463	AA4D0062	RENOVATE LAB SUITE 117, B/463	700,000	186
0900-BLDG	AA1D0082	AIR HANDLER REPLACEMENTS	5,410,000	170
0555	AA2D0075	AIR HANDLER REPLACEMENTS K-7, B/555	250,000	170
0815	AA3D0053	AIR HANDLER REPLACEMENTS AC-1, B/815	250,000	170
0030	AA1D0108	REPLACE BOILER AT BROOKHAVEN CENTER, B/30	80,000	170
0902	AA4D0073	MODERNIZATION OF THE VERTICAL CRYO TEST FACIL	400,000	150
761030258	A98D0174	NEW TRAFFIC LIGHTS AT MAIN GATE	120,000	150
ST0568	AA3D0024	BNL VEHICLE RADIATION MONITOR REPLACEMENT	95,000	145
0463	AA4D0061	RENOVATE LAB SUITE 284, B/463	600,000	136

ASSET_NO	ADS_NO	TITLE	TEC	SCORE
0463	AA4D0059	RENOVATE LAB SUITE 182, B/463	500,000	136
0463	AA3D0018	REPLACE DISTILLED WATER SYSTEM, B/463	151,000	136
0488	A97D0062	REPAIR LOADING DOCK, B/488	160,000	136
0900	AA1D0078	REPLACE 3 CARGO STORAGE BOXES	125,000	136
0490	AA4D0054	RENOVATE ROOM B-3, B/490	150,000	132
0930	AA1D0080	REPLACEMENT OF PCB CAPACITORS IN B/930	500,000	127
0900-BLDG	A99D0097	CHILLER REPLACEMENTS	1,350,000	127
ST0968	AA2D0060	REPLACEMENT OF COOLING TOWER #4 AT AGS	225,000	126
0630	A98D0121	REPAIR SAGGING FOUNDATION	28,000	115
0610	A98D0101	B/610 EXTERIOR REPAIRS	450,000	111
ST0049	N98D0049	PAINT 300,000 GAL. ELEVATED WATER TANK B/49	389,000	110
0913	P98D0027	UPGR AGS PWR DIST SYS FAN HOUSE C,D,E	800,000	102
0913	P98D0028	UPGR AGS PWR DIST SYS N. TARGET BLDG	200,000	102
0913	P98D0026	UPGR AGS PWR DIST SYS FAN HOUSE B	200,000	102
0913	P98D0029	UPGR AGS PWR DIST SYS S. TARGET BLDG	200,000	102
0913	P98D0010	UPGR AGS PWR DIST SYS FAN HOUSE A	200,000	102
0555	AA4D0095	REPLACE FIRE ALARM PANEL B/555	116,000	97
0130	AA4D0096	REPLACE FIRE ALARM PANEL B/130/134	65,000	97
0921	AA4D0094	REPLACE FIRE ALARM PANEL B/921	42,000	97
0900-BLDG	AA1D0003	REPLACE VARIOUS FIRE ALARM PANELS - SITEWIDE	1,650,000	97
0463	A99D0074	B/463, RENOVATION OF LAB.116	500,000	82
0463	A99D0075	B/463, RENOVATION OF LAB. 118	500,000	82
0725	AA1D0056	SMOKE DETECTOR REPLACEMENT, NSLS B/725	250,000	82
0913	A98D0046	REPLACE OF NEW A/C EQUIPMENT (5) AGS FAN HOUSES	425,000	81
0913	A99D0068	AGS RING ROOF REPAIRS	275,000	78
0811	AA4D0072	B/810/811 SURFACE IMPROVMENT OF D-TANKS #3 & #4	45,000	77
7131030230	A99D0003	WATER MAIN REPLACEMENT-TECHNOLOGY STREET	912,000	76
0900-BLDG	A93D0261	FIRE DOOR UPGRADES, VAR BLDGS.	90,000	70
13.8KV CABLE	A98D0206	REPLACE 13.8 KV FEEDER 919-1	360,000	61
7131030230	AA2D0059	B/911 REHAB COOLING WATER SUPPLY	100,000	61
0900-BLDG	AA1D0137	REPLACE HYDRAULIC ELEVATORS, SITE-WIDE	4,417,500	60
0725	AA2D0082	REPLACE SOUTH PASSENGER ELEVATOR, B/725	275,000	60
7131030230	N98D0064	APT. AREA POTABLE WATER PIPING REPLACEMENT	875,000	60

ASSET_NO	ADS_NO	TITLE	TEC	SCORE
0317	AA2D0061	B/317 REHAB	130,000	60
0535	A98D0086	NEW TILE FLOOR THROUGHOUT B/535	100,000	60
7131030230	A98D0051	REPLACE DOMESTIC WATER BLDG ISOLATION VALVES	50,000	60
0463	AA1D0096	REFURBISH CHEM DEPT GLASS WASHING LABORATORY	25,000	50
0535	A98D0085	CEILING AND LIGHT REPLACEMENT IN B/535B	150,000	40
7131030230	A98D0030	REPLACE TRANSITE WATER MAINS@BRKHVN & PRIN	500,000	40
610-BLR001A	A98D0092	BOILER 1A RETUBE THE FRONT HALF	120,000	40
0900-BLDG	N98D0025	REPLACE SKIRTING & FOUNDATION VENTS, VAR. BLDGS	50,000	40
0464	N98D0044	B/464 REPLACE 2 WATER COOLED AC UNITS	70,000	30
0463	N98D0039	B/463 RENOVATION OF LABS 167 & 170	885,000	27
0490	N98D0035	B/510 REPLACE CHILLED WATER VALVES MAINS	10,000	27